

Subsidy Estimation: A survey of current practice

June 2010

Edited by:

Darryl Jones and Ronald Steenblik

The Global Subsidies Initiative (GSI) of the International Institute for Sustainable Development (IISD)

Geneva Switzerland



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Australian Productivity Commission. (2006) Allocating budgetary assistance by industry grouping: Recent revisions. Methodological Annex to the *Trade and Assistance Review 2004-05*, Retrieved April 30, 2010 from Productivity Commission Canberra, http://www.pc.gov.au/_data/assets/pdf_file/0020/8552/annex.pdf.

TABLE OF CONTENTS

Preface	viii
Acronyms and abbreviations	ix
Part 1. Introduction	1
Chapter 1. Objectives and structure	1
Chapter 2. General definitions	3
2.1. Subsidy	3
2.2. Support	6
2.3. Transfers	7
2.4. Government Assistance	8
2.5. State Aid	8
Part 2. Measurement of subsidies	10
Chapter 3. Direct Transfer of funds	10
3.1. Grants	12
3.2. Other direct transfer of funds	18
Chapter 4. Credit-related subsidies	22
4.1. Interest Rate Subsidies	22
4.2. Preferential loans	23
4.3. Debt Forgiveness	36
4.4. Export insurance	38
4.5. Loan guarantees and insurance programmes	38
Chapter 5. Government equity participation	53
Chapter 6. Revenue foregone or not collected (Tax expenditures)	63
6.1. General principles	63
6.2. Accelerated depreciation and other tax deferrals	70
6.3. Credits, refunds and exemptions from income tax	79
6.4. Exemptions and relief from indirect taxes	81
Chapter 7. Government provision or purchase	88
7.1. Government provision of goods and services	88
7.2. Government purchase of goods	99
Chapter 8. Income or Price Support	101
Part 3. Adjustments	108
Chapter 9. Deductions for fees, expenses and deferred receipts	108
Chapter 10. Allocation to sectors or industries	111
Chapter 11. Allocation to particular time periods	116
Chapter 12. Denominator for assessing the relative level of subsidy	129
Reference List	143

PREFACE

This document is addressed primarily to those individuals who are interested in preparing estimates of subsidies to particular products or sectors—people who engage in what might be called “subsidy accounting.” Unlike financial accounting for the business sector, or public-sector accounting for governments, there exists no agreed set of standards for producing such accounts. This surprising state of affairs reflects, in part, the diverse backgrounds and aims of subsidy-accounting practitioners, who include experts working for countervail authorities (those charged with estimating countervailing duties on imports from foreign countries), competition commissions, producers of national account statistics, intergovernmental organizations undertaking research on the trade or environmental effects of subsidies, international financial institutions, non-governmental organizations, and individual academics.

An internationally agreed set of standards for estimating subsidy elements, and for preparing and using aggregates and derived indicators, is sorely needed. Interest in subsidies and their effects is growing. As import tariffs, previously the main instruments of trade protection, have been ratcheted down through successive multilateral and bilateral negotiations, the importance (and some would say the use of) subsidies has become more apparent. Similarly, as sub-national units compete more vigorously to attract businesses to locate in their jurisdictions, investment incentives and similar local subsidies have attracted the attention of organized labour and competition authorities. And, as environmental policy-makers and non-governmental organizations consider how to address problems such as climate change and over-fishing more cost-effectively, they are coming to realize that the first order of business is to reform or cease providing those subsidies that are contributing to such problems.

International standards relating to methods do not emerge spontaneously, however. One cannot impose such a set of standards on such a diverse set of practitioners. Creating them is a process that requires a dialogue. This document, which quotes from the extant documentation of subsidy methods published mainly by inter-governmental organizations and governments, is intended to kick start such a dialogue, leading in the next stage to the promulgation of best-practice recommendations and, ultimately, a set of agreed international standards.

While for most estimation methods the document quotes multiple sources, often the approaches do not actually differ fundamentally, and users may simply want to refer to the one that makes most sense to them. In cases where they do differ markedly, users should choose whichever method best serves their purposes and can be implemented with the available data. Reconciling the differences among the various methods used to estimate the same generic types of subsidies, or at least providing guidance on when to use which method, is the urgent task that remains to be done.

ACRONYMS AND ABBREVIATIONS

ABARE	Australian Bureau of Agriculture and Resource Economics
ASCM	Agreement on Subsidies and Countervailing Measures
CVP	Central Valley Project (California, USA)
EU	European Union
EWG	Environmental Working Group
FAO	Food and Agricultural Organization of the United Nations
FTAA	Free Trade Agreement of the Americas
GGBE	Gross Government Budget Expenditure
GSI	Global Subsidies Initiative
IAS	International Accounting Standard
IEA	International Energy Agency
IISD	International Institute for Sustainable Development
IMF	International Monetary Fund
MPD	market price differential
MPS	market price support
NCG	net cost to government
NPV	net present value
OECD	Organisation for Economic Co-operation and Development
PSE	producer support estimate
TRQ	tariff-rate-quotas
UNSD	United Nations Statistics Division
URAA	Uruguay Round Agreement on Agriculture
USA	United States of America
USCBO	United States Congressional Budget Office
USGAO	United States Government Accountability Office
VAT	value added tax
WTO	World Trade Organization

PART 1. INTRODUCTION

CHAPTER 1. OBJECTIVES AND STRUCTURE

One of the significant achievements of the Uruguay Round of trade negotiations was to establish a precise definition of subsidy within the World Trade Organization (WTO). The Agreement on Subsidies and Countervailing Measures (ASCM) contains a delicate balance of subsidy definitions and disciplines that were intended to be clear, predictable and enforceable (Steger, 2003).

However, the implementation of the ASCM has raised a number of issues, including how to estimate the value of a subsidy program. A method for measuring subsidies is required in order to report on the level of subsidies to the WTO and to analyze the possible trade impacts of subsidy programs. And a consistent method is required in order to allow comparison of subsidy levels within a country, over time and between countries.

In addition to the WTO notifications, a large number of studies, reports and analyses have been published that contain estimates of subsidy values. While variations can occur due to different definitions of what constitutes a subsidy, and consequent coverage, variations also arise due to different valuation methods. Unfortunately, in many cases, the method used by researchers to measure the value of the subsidies is not reported or is only provided to the public in very brief terms. This can lead to confusion and misunderstanding as to the real extent of support being provided, and cloud the debate about the significance and effect of a subsidy program.

The Global Subsidies Initiative (GSI) is working to improve the transparency of subsidies, and their effects on the environment, the economy and governance. To this end, it has commenced a project to develop a manual of best practice for measuring the value of subsidies. This survey represents the initial step towards this longer-term objective by drawing together the valuation methods that are used and publicly reported by a large number of organizations that represent a good cross-section of the work that has been and is being done on subsidy measurement.

Following this introduction, the second chapter lists various definitions of subsidies used by organizations. Definitions have important consequences for (a) classification or categories of subsidies and (b) methods for calculating subsidies.

The second and largest part of the survey deals with the estimation of subsidies. The various valuation methods have been organized into six chapters that reflect the forms of subsidies as defined in Article 1 of the ASCM: transfer of funds (actual and potential), credit-related subsidies, government equity participation, revenue forgone or not collected, government provision or purchase, and income or price support. By using the WTO definition as the basis, the survey excludes some valuation methods, such as those used to calculate the social costs of not charging users for negative externalities they create or resources that they use. These are included in only a small proportion of subsidy estimations.

Each of the chapters in Part 2 begins with the relevant text from Article 1 of the ASCM. Article 14 of the ASCM establishes, at a broad level, the methodology to be followed for measuring the amount of a subsidy as part of a countervailing duty investigation for some forms of subsidy. Where this is done, it is included at the beginning of the chapter.

The relevant ASCM texts are then followed by appropriate texts from various reports of the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures. The Informal Group of Experts was created by a decision of the Committee, at its meeting on June 13, 1995, with the following terms of reference:

To examine matters which are not specified in Annex IV to the Agreement or which need further clarification for the purposes of paragraph 1(a) of Article 6, and to report to the Committee such recommendations as the Group considers could assist the Committee in the development of an understanding among Members, as necessary, regarding such matters.

In accordance with these terms of reference, the reports of the Informal Group of Experts contain a number of recommendations with respect to particular calculation issues arising under Annex IV to the ASCM.

The valuation methodologies used by other organizations are then listed alphabetically in order to maintain consistency and allow the reader to easily follow the approach used by an institution. The ordering does not reflect any preference of one method over another. It should also be noted that not all organizations are represented in each of the chapters, representing the fact that either the study does not consider that form of subsidy or that a valuation methodology was not publicly available.

Part 3 is also divided into four chapters, each dealing with a specific type of adjustment that is made to the subsidy valuation: deduction of fees, distribution of benefits between activities or products, distribution of benefits over time and the choice of denominator to calculate the relative level of subsidy.

The organizations covered in the survey include intergovernmental organizations (FAO, IEA, OECD, World Bank and WTO); countervailing authorities (Canada, the E.C., India, Korea and the U.S.A.); other government agencies (Australia, Canada, the E.C. and the U.S.A.) and non-government organisations (Earth Track and the Environmental Working Group).

The survey is not intended to comment or pass judgement on the subsidy valuation methodology used by the organizations contained within the report. Rather, the intention is to assist readers in understanding the various methodologies being used and to see for themselves the common and divergent aspects.

While the survey focuses on the measurement of the subsidy value based on the definition of subsidies contained in the ASCM, it does not concern itself with the measurement of other issues relating to subsidies also contained in the ASCM. It does not concern itself, for example, with the issue of specificity. Neither does it deal with method for indicating whether the subsidy has resulted in “adverse effects to the interests of other Members, i.e., (a) injury to the domestic industry [...], (b) nullification or impairment of benefits [...], (c) serious prejudice to the interests of another Member” (Article 5).

CHAPTER 2. GENERAL DEFINITIONS

2.1. Subsidy

WTO (1994) *Agreement on subsidies and countervailing measures*

Article 1

Definition of a Subsidy

1.1 For the purpose of this Agreement, a subsidy shall be deemed to exist if:

(a)(1) there is a financial contribution by a government or any public body within the territory of a Member (referred to in this Agreement as “government”), i.e., where:

- (i) a government practice involves a direct transfer of funds (e.g., grants, loans, and equity infusion), potential direct transfers of funds or liabilities (e.g., loan guarantees);
- (ii) government revenue that is otherwise due is foregone or not collected (e.g., fiscal incentives such as tax credits)²;
- (iii) a government provides goods or services other than general infrastructure, or purchases goods;
- (iv) a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more of the type of functions illustrated in (i) to (iii) above which would normally be vested in the government and the practice, in no real sense, differs from practices normally followed by governments;

or

(a)(2) there is any form of income or price support in the sense of Article XVI of GATT 1994;

and

(b) a benefit is thereby conferred

² In accordance with the provisions of Article XVI of GATT 1994 (Note to Article XVI) and the provisions of Annexes I through III of this Agreement, the exemption of an exported product from duties or taxes borne by the like product when destined for domestic consumption, or the remission of such duties or taxes in amounts not in excess of those which have accrued, shall not be deemed to be a subsidy.

ABARE (1995) *Methods for identifying and measuring cross subsidies in the natural gas market*

A subsidy is a payment or a financial commitment that results in consumers paying prices below the costs of their supply. A cross subsidy involves a subsidy to one consumer or group of consumers being financed by higher prices for other consumers supplied by the same firm. For example, cross subsidies can apply between residential and industrial or urban and rural consumers supplied by the same firm. Cross subsidies may also apply to outputs rather than consumers—for example between peak and off-peak or high and low voltage electricity supply. In the case of natural gas markets, cross subsidies are usually thought to exist between different classes of consumers, for example, from contract to tariff customers of utilities (Gas Council of New South Wales 1994a). For simplicity, throughout this report we refer to cross subsidies applying to consumers rather than outputs.

**Australian Department of Environment, Sport and Territories (1996)
*Subsidies to the use of natural resources***

As the term is used here, a financial subsidy arises when a government deliberately adds to the revenue or relaxes the financial performance criteria of a productive entity to enable it to sell its outputs at less than the real costs incurred in producing those outputs. The subsidy may be disguised, for example as provision of capital at less than market rates, or the purchase of part of the output at greater than cost. In this paper these subsidies are termed ‘financial subsidies’.

Financial subsidies may be provided through the failure of government owned entities to achieve normal rates of return, direct subsidies, rebates, etc., special tax allowances, and the non-recovery of public agency costs for services provided to resource industries, for example by not being required to earn normal rates of return, or to recover some costs of their operations.

Governments may also subsidise production by not enforcing payment for costs imposed on other parties by producing entities. In economic terms these costs are termed external costs and where they impact on the environment are known as environmental externalities. In this paper such subsidies are termed ‘environmental subsidies’ since they are costs which are not reflected in prices. Environmental subsidies may be removed by imposing charges for use of the resource, or alternatively by negotiation, regulation or information programs to reduce environmental impacts.

When production is organised within the public sector and is wholly paid for out of taxes, it is not generally regarded as subsidised. Thus it is rarely claimed that the defence or police forces are subsidised. A further condition for a subsidy to be identified, therefore, is that the output must be at least potentially saleable. This means that individual purchasers must be identifiable, and the output must be denominated in units on which a sale price can be placed.

FAO (2004) *Guide for identifying, assessing and reporting on subsidies in the Fisheries Sector*

To most of us, a subsidy is some kind of government support to the private sector, generally serving a public purpose. Looking up the term “subsidy” in a dictionary gives us that a subsidy is “a direct or indirect payment, economic concession, or privilege granted by a government to private firms, households, or other governmental units in order to promote a public objective” (FAO Fisheries Glossary and Encyclopaedia Britannica 2001).

Based on this general notion, the Guide proposes a broad definition of fisheries subsidies according to which a subsidy could fundamentally be any government intervention—or lack of intervention—that affects the fisheries industry and that has an economic value. This economic value is interpreted as something having an impact on the profits of the fisheries industry. The intra-government aspect from the definition above is disregarded and subsidies are defined as actions or inactions for which the recipient is part of the private fisheries industry (and not “other government units”).

However, not everything the public sector does or does not do can be classified as subsidies and a further qualification of the definition is needed with regard to reference points. Accordingly, we define a subsidy as something that is out of the ordinary, i.e., something that is done differently from what is customary:

Fisheries subsidies are government actions or in-actions outside of normal practices that modify—by increasing or decreasing—the potential profits by the fisheries industry in the short-, medium- or long-term

“Government” here also includes other governments and public bodies than the ones in the country where the subsidy as such exists. This would, for example, include contributions from public and international development aid and cooperation institutions. It also of course includes actions or inactions by non-fishery government agencies and organizations. If these actions or inactions benefit the fisheries industry in a significant way, they may be fisheries subsidies even if they are not only directed to the sector. Sponsorships by private companies do however not constitute subsidies.

The “fisheries industry” refers to all productive subsectors of the fisheries and aquaculture sector, i.e., all types of input industry—including transport and other support services—capture fisheries, aquaculture, processing and marketing. It covers all producers and operators, both small and large-scale, engaged in recreational, subsistence and commercial activities. For our particular study, we may of course have decided that we only want to look at a group of firm, at one or a few subsectors or at an aggregate industry level (see also chapter 3 and section 6.3).

By “potential profits” the overall profitability of the industry is implied. However, while subsidies affect profits in the short, medium and long-term, the Guide’s focus is on the more direct shorter-term financial effects as we will see when discussing how to assess subsidies in chapter 6. It should be noted that subsidies could also decrease profits. Examples of profit-decreasing subsidies would be taxes and other fees and duties, levied by the government.

It is important to note that the action (or inaction) does not have to be specifically directed to the fisheries industry—it can be something also applicable to other economic sectors—but if the fisheries industry benefits (or suffers) economically compared to industry in general, the Guide defines it as being a fisheries subsidy.

IEA (2006) *Carrots and sticks: Taxing and subsidising energy*

The narrowest and perhaps most commonly used definition is a direct cash payment by a government to an energy producer or consumer. But this is just one way in which governments can stimulate the production or use of a particular fuel or form of energy, including oil. Broader definitions attempt to capture other types of government interventions that affect prices or costs, either directly or indirectly. The IEA has defined energy subsidies as any government action that concerns primarily the energy sector that lowers the cost of energy production, raises the price received by energy producers or lowers the price paid by energy consumers. This definition has been widely adopted.

IMF (2001) *Government finance statistics manual*

Subsidies are current transfers that government units pay to enterprises either on the basis of the levels of their production activities or on the basis of the quantities or values of the goods or services that they produce, sell, or import. Included are transfers to public corporations and other enterprises that are intended to compensate for operating losses.

Or: Subsidies are current unrequited payments that government units make to enterprises on the basis of the levels of their production activities or the quantities or values of the goods or services they produce, sell, export, or import. Subsidies may be designed to influence levels of production, the prices at which outputs are sold, or the remuneration of the enterprises. Subsidies are payable to producers only, not to final consumers, and are current transfers only, not capital transfers.

UNSD (2010) *Glossary of terms*

Subsidies are current unrequited payments that government units, including non-resident government units, make to enterprises on the basis of the levels of their production activities or the quantities or values of the goods or services which they produce, sell or import. They are receivable by resident producers or importers. In the case of resident producers they may be designed to influence their levels of production, the prices at which their outputs are sold or the remuneration of the institutional units engaged in production. Subsidies are equivalent to negative taxes on production in so far as their impact on the operating surplus is in the opposite direction to that of taxes on production.

USGAO (2005) *A glossary of terms used in the federal budget process*

Generally, a payment or benefit made by the federal government where the benefit exceeds the cost to the beneficiary. Subsidies are designed to support the conduct of an economic enterprise or activity, such as ship operations. They may also refer to (1) provisions in the tax laws for certain tax expenditures and (2) the provision of loans, goods, and services to the public at prices lower than market value. These include interest subsidies.

2.2. Support

OECD (2009) *The PSE manual*

Producer Support Estimate (PSE): the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm-gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on farm production or income.

General Services Support Estimate (GSSE): the annual monetary value of gross transfers to general services provided to agricultural producers collectively (such as research, development, training, inspection, marketing and promotion), arising from policy measures that support agriculture regardless of their nature, objectives and impacts on farm production, income, or consumption. The GSSE does not include any transfers to individual producers.

Consumer Support Estimate (CSE): the annual monetary value of gross transfers from (to) consumers of agricultural commodities, measured at the farm-gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on consumption of farm products.

Total Support Estimate (TSE): the annual monetary value of all gross transfers from taxpayers and consumers arising from policy measures that support agriculture, net of the associated budgetary receipts, regardless of their objectives and impacts on farm production and income, or consumption of farm products.

The indicators measure policy transfers to the agricultural sector. The phrase “from consumers and taxpayers” in the definition of the indicators points to the fact that they are primarily a measure of the cost of support for consumers and taxpayers. This implies that the indicators do not provide information on the “leakages” of support in the economic system. In fact, a proportion of the transfers will not end up as producer income because support induces higher prices for agricultural inputs and factors, as well as generating deadweight loss. The actual impact of policies will depend, among other things, on the basis upon which support is provided, the level of support, and the responsiveness of farmers to changes in support. The indicators, therefore, measure the policy effort that governments make in their agricultural policies. They are not intended to and do not measure the impact of that effort on farm incomes, trade or environment. The concept of policy effort underlying the indicators is crucial for proper interpretation of the estimates.

2.3. Transfers

IMF (2001) *Government finance statistics manual*

A transaction is a transfer if one unit provides a good, service, asset, or labor to a second unit without receiving simultaneously a good, service, asset, or labor of any value in return. Typically, general government units engage in a large number of transfers, which may be compulsory or voluntary. Taxes and most social security contributions are compulsory transfers imposed by government units on other units. Subsidies, grants, and social assistance benefits are voluntary transfers from general government units to other units.

Or: Transfers that government units make directly to households as consumers and most transfers to nonprofit institutions serving households are treated as either social benefits or miscellaneous other expense depending on the reason for the payment.

All transactions that decrease the net worth of the general government sector are classified as expense. The purchase of a nonfinancial asset is not an expense because it has no effect on net worth. Rather, it changes the composition of the balance sheet by exchanging one asset (the nonfinancial asset) for another or a liability (the payment for the asset). The major types of expense are compensation of employees, use of goods and services, consumption of fixed capital, interest, subsidies, grants, social benefits, and other expense. In addition, expense can be classified according to functional purpose, such as health or social protection.

2.4. Government Assistance

Australian Productivity Commission (2006) *Trade and Assistance Review 2004–05 Methodological Annex*³

The Productivity Commission Act 1998 defines *government assistance* to industry as: ...any act that, directly or indirectly, assists a person to carry on a business or activity, or confers a pecuniary benefit on, or results in a pecuniary benefit accruing to, a person in respect of carrying on a business or activity.

Assistance thus takes many forms. It extends beyond direct government subsidies targeted to particular firms or particular industries, and includes tariffs, quotas, antidumping duties and regulatory restrictions on imported goods and services, as well as tax concessions and subsidies for domestic producers. Assistance also arises from the provision of underpriced services by government agencies and from government procurement policies.

International Accounting Standards Board (2009) *IAS 20: Accounting for government grants and disclosure of government assistance*

3. *Government* refers to government, government agencies and similar bodies whether local, national or international. Government assistance is action by government designed to provide an economic benefit specific to an entity or range of entities qualifying under certain criteria. ...

Government assistance for the purpose of this Standard does not include benefits provided only indirectly through action affecting general trading conditions, such as the provision of infrastructure in development areas or the imposition of trading constraints on competitors.

4. Government assistance takes many forms varying both in the nature of the assistance given and in the conditions which are usually attached to it. The purpose of the assistance may be to encourage an entity to embark on a course of action which it would not normally have taken if the assistance was not provided.

2.5. State Aid

European Commission (2007) *State Aid Scoreboard*⁴

A company which receives government support obtains an advantage over its competitors. Therefore, the EC Treaty generally prohibits State aid unless it is justified by reasons of general economic development. To ensure that this prohibition is respected and exemptions are applied equally across the European Union, the European Commission is in charge of watching over the compliance of State aid with EU rules.

As a first step, it has to determine whether a company has received State aid, which is the case if the support meets the following criteria:

- there has been an intervention by the State or through State resources which can take a variety of forms (e.g., grants, interest and tax reliefs, guarantees, government holdings of all or part of a company, or the provision of goods and services on preferential terms, etc.);

³ © Commonwealth of Australia, reproduced by permission

⁴ © European Union, 1995–2010

- the intervention confers an advantage to the recipient on a selective basis, for example to specific companies or sectors of the industry, or to companies located in specific regions;
- competition has been or may be distorted;
- the intervention is likely to affect trade between Member States.

By contrast, general measures are not regarded as State aid because they are not selective and apply to all companies regardless of their size, location or sector. Examples include general taxation measures or employment legislation.

PART 2. MEASUREMENT OF SUBSIDIES

CHAPTER 3. DIRECT TRANSFER OF FUNDS

WTO (1994) Agreement on subsidies and countervailing measures

1.1 For the purpose of this Agreement, a subsidy shall be deemed to exist if:

- (a)(1) there is a financial contribution by a government or any public body within the territory of a Member (referred to in this Agreement as “government”), i.e., where:
 - (i) a government practice involves a direct transfer of funds (e.g., grants, loans, and equity infusion), potential direct transfers of funds or liabilities (e.g., loan guarantees);

OECD (2009) The PSE manual

5.1. Budgetary transfers

Budgetary transfers are the most “visible” policy transfers. They are observed and do not need to be estimated as is the case with the price transfers or support based on revenue foregone. The measurement of direct budgetary transfers is an accounting task, which consists of the appropriate use of information on budgetary spending. This section details the main procedures for accounting for budgetary transfers in support estimation.

5.1.1. Complete coverage of institutions, administrative levels and financing instruments

The first step is to identify all budgetary expenditures underlying policies which support agricultural production—whether provided to producers individually, producers collectively, or consumers of agricultural commodities. The principle of complete identification of all publicly financed transfers has three aspects:

First, all financing through public institutions involved should be captured, paying attention to the fact that implementation and funding of some agricultural measures may be outside the remit of agricultural ministries. This often concerns general services for agriculture, such as agricultural education, research, pest and disease control, or infrastructural development. Another example is agri-environmental measures which may be implemented by and financed through the ministries and agencies specifically responsible for environmental issues.

Second, funding from all administrative levels should be covered. Agricultural policy measures are financed at multiple levels of government. For example, in a country with a Federal government structure, support from national as well as state, province or prefecture level should be covered, as well as measures that are financed more locally, for example from counties, communes or townships. By convention, all expenditures beneath the national level are termed *sub-national*.

Also by convention, EU-level expenditures are considered as the national level, with EU country expenditures (including those made at regional levels), as at the sub-national level. Some EU policies, such as elements of its rural development policy, are co-financed across several levels of government, with the EU budget financing part of the costs of a programme, augmented by expenditure from an EU country government's budget, with the possibility of additional expenditure by a regional or local government entity within that country.

Third, all public finance instruments should be covered. In some non-OECD countries, for example Brazil and Russia, agricultural support may also be financed from the so-called extra-budget funds – instruments which do not formally constitute part of the national budgets. Such funds may be created at the national or regional level and are usually used for implementation of specific programmes.

5.1.2. Accounting of effectively disbursed funds

Data on effectively disbursed – as opposed to planned or budgeted funds – should be used. The principle is to capture transfers that actually affect producer revenues. The difference between budgeted and effectively disbursed outlays can be large, for example when emergency assistance is provided over and above the initial budget appropriation, or in the case of deficiency payments, when there is considerable under- or over-spending due to favourable or unfavourable market conditions. It is important to ensure that all spending items are accounted for consistently in terms of amounts effectively disbursed. However, if the estimations are done on an annual basis, such information may not be available in time for the latest year – in this case data on budgeted expenditures are used, which are then adjusted the following year to reflect actual spending.

5.1.4. Avoiding double counting of support: an example of outlays on price regulation

In the work with budgetary expenditures, special care should be taken to avoid double-counting of support in the PSE. This risk exists when budgetary expenditures underlie support which has already been included elsewhere. The clearest example is budgetary expenditures related to domestic price interventions. Several such expenditures can be distinguished: (a) intervention purchases; (b) export subsidisation (outlays on export subsidies, export credits or food aid); (c) price subsidies (deficiency payments); (d) payments for on-farm stockholding; (e) outlays for public stockholding, which include operational costs of public purchasing agencies and depreciation and disposal costs associated with public stocks; (f) compensatory payments to consumers, e.g., subsidies to the first purchasers of agricultural commodities—mills, dairies, slaughterhouses, etc.—provided to reduce the burden imposed on them by agricultural price support.

When the Market Price Differential (MPD) and consequently the price transfers are estimated by comparing domestic and border prices, outlays for intervention purchases (group a above) or export subsidies (group b), if they are applied, should not be included in the PSE. The purpose of these expenditures is to raise the level of domestic prices and this support is already captured through the price gap. Inclusion of groups (a) and (b) in the budgetary part of support in this case would create double-counting with price transfers. When the MPD is estimated based on per tonne deficiency payments (group c) or per tonne export subsidies (group b) these budgetary items represent direct input into estimation of price transfers, and also should not appear in the budgetary transfers. The groups that should be accounted in the budgetary transfers are: payments for on-farm stockholding (group d), classified in PSE category A2. Payments based on output; expenditures on public stockholding (group e), classified in GSSE category M. Public stockholding; and compensatory payments to consumers (group f), classified in the CSE as Transfers to Consumers from Taxpayers (TCT).

3.1. Grants

WTO (1998) Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures

A. Grants (Recommendation 8)

Two basic kinds of grants, outright grants and reimbursable grants, were identified. Moreover, it was noted that grants might be provided in instalments, rather than as onetime payments.

1. Outright grants

The Group agreed that at the most basic level, the cost to government of a grant is its face value. For outright grants not paid in instalments, it is recommended that the cost to the government be deemed to be the face amount of the grant, adjusted (if allocated over time) for inflation and interest in accordance with the general recommendation.

For grants paid in instalments, it is recommended that each instalment be treated as a separate grant. This approach is consistent with the recommendation to vary the sales denominator each year during an allocation period. It also allows for any differences between the amount of an instalment grant authorized and the amount actually paid to be reflected in the calculations in a simple and straightforward way.

2. Reimbursable Grants

For grants with terms that include the obligation of reimbursement in the event that certain conditions are fulfilled (e.g., that the recipient becomes profitable), the similarity with contingent liability loans was recognized (see Section VIII.B.2, below). Given this, it is recommended that during the period before they are reimbursed, reimbursable grants be treated as a series of short-term, interest-free loans. The cost to the government in such a case would be calculated using the methodology for ordinary loans, described below.

It is recognized that, regardless of the fact that a given grant was nominally reimbursable, it might be determined at some point that such a grant in fact never would be reimbursed (as in the case, for example, of a chronically unprofitable recipient). Thus, it may become appropriate to determine that a nominally reimbursable grant in effect has become an outright grant, and to treat it as such. In such a situation, the cost to the government of the grant would be its outstanding amount as of that date (that is, the original amount less any reimbursement that had been made to that point).

Given that where a reimbursable grant has become an outright grant this is similar to an instance of debt forgiveness, it is recommended that the allocation period for any such outstanding amount should begin on the date as of which it is determined that this amount effectively has become an outright grant. This approach is recommended to ensure that the “principal amount” of reimbursable grants is captured in Article 6.1(a) subsidy calculations where such grants have been outstanding for lengthy periods and have no realistic prospect of being reimbursed. To do otherwise would mean that only an imputed interest cost associated with what effectively were outright grants would be reflected in Article 6.1(a) calculations.

International Accounting Standards Board (2009) IAS 20: Accounting for government grants and disclosure of government assistance

3. ... *Government grants* are assistance by government in the form of transfers of resources to an entity in return for past or future compliance with certain conditions relating to the operating activities of the entity. They exclude those forms of government assistance which cannot reasonably have a value placed upon them and transactions with government which cannot be distinguished from the normal trading transactions of the entity.

Grants related to assets are government grants whose primary condition is that an entity qualifying for them should purchase, construct or otherwise acquire long-term assets. Subsidiary conditions may also be attached restricting the type or location of the assets or the periods during which they are to be acquired or held.

Grants related to income are government grants other than those related to assets. Forgivable loans are loans which the lender undertakes to waive repayment of under certain prescribed conditions.

Fair value is the amount for which an asset could be exchanged between a knowledgeable, willing buyer and a knowledgeable, willing seller in an arm's length transaction.

Government of Canada (2010) Regulations respecting special import measures

27. Where the subsidy in relation to any subsidized goods is in the form of a grant, the amount of subsidy shall be determined by distributing, in accordance with generally accepted accounting principles, the amount of the grant over

- (a) where the grant was, or is, to be used for operating expenses in the production, purchase, distribution, transportation, sale, export or import of subsidized goods, the estimated total quantity of subsidized goods to which the grant is attributable;
- (b) where the grant was, or is, to be used for the purchase or construction of a fixed asset, the estimated total quantity of subsidized goods for the production, purchase, distribution, transportation, sale, export or import of which the fixed asset was, or will be, used for the anticipated useful life of the fixed asset;
- (c) where the use of the grant was, or is, not for the purposes described in paragraph (a) or (b) or is unknown, the estimated total quantity of subsidized goods the production, purchase, distribution, transportation, sale, export or import of which was, or will be, carried out by the person who received the grant during the weighted average useful life, not exceeding 10 years, of fixed assets used by the industry of that person.

27.1 (1) Any amount that relates to the direct transfer of funds or liabilities by the practices of a government shall be treated as a grant under section 27.

(2) Any amount otherwise owing and due to a government that is exempted or deducted and any amount owing and due to a government that is forgiven or not collected by the government shall be treated as a grant under section 27.

European Commission (1998) *Guidelines for the calculation of the amount of subsidy in countervailing duty investigations*⁵

and Government of India (2006) *Customs Tariff Rules Amendment*

(a) Grants

In the case of a grant (or equivalent) where none of the money is repaid, the value of the subsidy [EC: is] [India: should be] the amount of the grant corrected for any differences between the point in time of its receipt and the investigation period, i.e., the period in which the production or sales are allocated.

Therefore if the grant is expensed during the investigation period, (that is, its amount is entirely allocated to production or sales during this period), the interest that would have accrued during that period should normally be added. If however, the grant is allocated over a longer period than the investigation period, the interest will be added as described in section [EC: F (a)(ii)] [India: C (a)(ii)].

Any lump sum of revenue transferred or foregone (e.g., income tax or duty exemption, rebates, money saved from preferential provision of goods and services or gained from excessive prices for the purchase of goods) [EC: is] [India: should be] considered as being equivalent to a grant [EC: (see examples 1, 1(i), 3, 4, 5)].

[EC: *Specific examples of grants or equivalent.* In order to establish the full amount of subsidy, all of the amounts in specific examples below should be increased by interest as described in the introduction; the total amount of subsidy also depends on whether the subsidy is allocated or expensed.]

(i) Direct transfer of funds

[EC: The simplest case.] The amount of subsidy [EC: is] [India: should be] the amount received by the company concerned (a subsidy to cover operating losses would fall into this category).

FAO (2004) *Guide for identifying, assessing and reporting on subsidies in the Fisheries Sector*

6.5.2. Investment grants

An investment grant programme is probably one of the most obvious examples of a direct financial transfer subsidy of Category 1. These schemes are commonly used for the purchase or modernization of equipment and facilities, having improved competitiveness through more efficient production as an objective. They generally benefit investments in fishing vessels or in the processing industry but can also be found in other parts of the sector, for example, in the input industry for shipbuilding or in the aquaculture subsector.

The value to the industry of this type of subsidy scheme consists of the value of the grant itself plus an estimate of the interest it would have cost to finance the investment commercially. Generally the investments are in fixed assets for which the cost is allocated over a depreciation period of several years and the annual value to the industry should be calculated accordingly. The length of the depreciation period and the amount to be charged to each period should be based on the expected economic life span of the type of asset in question. We may also want to consider the effect of inflation and the change of monetary values over time and calculate the present value of the depreciation cost for the year of our study.

⁵ © European Union, <http://eur-lex.europa.eu>. Only European Union legislation printed in the paper edition of the *Official Journal of the European Union* is deemed authentic.

BOX 6

Investment grants - An example

In the country Seidisbus, the Department of Fisheries operates a scheme through which aquaculture producers can apply for grants for improving their fresh fish storage and transport facilities. In the year 2000, a total of 25 aquaculture firms applied for and received funds for investments in cold storage and insulated trucks for a total amount of US\$ 700 000. This was a somewhat lower amount than what had usually been given out during the last few years. The market interest rate that would have been charged by commercial banks for giving loans for this type of investment was 15%. The economic life span of the equipment was estimated as seven years.

In a fisheries subsidies study in 2000, the government cost of the investment grant scheme was estimated as the total amount of the grants disbursed plus administrative costs (part of the Aquaculture Unit's budget), i.e.: 700 000 + 70 000 = US\$ 770 000.

The value to the industry in 2000 was calculated as 1/7 of the total amount of the grants received in 2000 (cost allocated evenly over seven years according to the straight-line depreciation method) plus 1/7 of all grants disbursed in the previous six years plus a 15% financial cost: 14 000 000 (total amount of grants 1994-2000) divided by 7 + 15% interest = US\$ 2 300 000.

International Accounting Standards Board (2009) IAS 20: Accounting for government grants and disclosure of government assistance

- 7 Government grants, including non-monetary grants at fair value, shall not be recognised [in a corporation's accounts] until there is reasonable assurance that:
 - (a) the entity will comply with the conditions attaching to them; and
 - (b) the grants will be received.
- 8 A government grant is not recognised until there is reasonable assurance that the entity will comply with the conditions attaching to it, and that the grant will be received. Receipt of a grant does not of itself provide conclusive evidence that the conditions attaching to the grant have been or will be fulfilled.
- 9 The manner in which a grant is received does not affect the accounting method to be adopted in regard to the grant. Thus a grant is accounted for in the same manner whether it is received in cash or as a reduction of a liability to the government.
- 10 A forgivable loan from government is treated as a government grant when there is reasonable assurance that the entity will meet the terms for forgiveness of the loan.
 - 10A The benefit of a government loan at a below-market rate of interest is treated as a government grant. The loan shall be recognised and measured in accordance with IAS 39 *Financial*

Instruments: Recognition and Measurement. The benefit of the below-market rate of interest shall be measured as the difference between the initial carrying value of the loan determined in accordance with IAS 39 and the proceeds received. The benefit is accounted for in accordance with this Standard. The entity shall consider the conditions and obligations that have been, or must be, met when identifying the costs for which the benefit of the loan is intended to compensate.

- 11 Once a government grant is recognised, any related contingent liability or contingent asset is treated in accordance with IAS 37 Provisions, Contingent Liabilities and Contingent Assets.
- 12 Government grants shall be recognised in profit or loss on a systematic basis over the periods in which the entity recognises as expenses the related costs for which the grants are intended to compensate.
- 13 There are two broad approaches to the accounting for government grants: the capital approach, under which a grant is recognised outside profit or loss, and the income approach, under which a grant is recognised in profit or loss over one or more periods.
- 14 Those in support of the capital approach argue as follows:
 - (a) government grants are a financing device and should be dealt with as such in the statement of financial position rather than be recognised in profit or loss to offset the items of expense that they finance. Because no repayment is expected, such grants should be recognised outside profit or loss.
 - (b) it is inappropriate to recognise government grants in profit or loss, because they are not earned but represent an incentive provided by government without related costs.
- 15 Arguments in support of the income approach are as follows:
 - (a) because government grants are receipts from a source other than shareholders, they should not be recognised directly in equity but should be recognised in profit or loss in appropriate periods.
 - (b) government grants are rarely gratuitous. The entity earns them through compliance with their conditions and meeting the envisaged obligations. They should therefore be recognised in profit or loss over the periods in which the entity recognises as expenses the related costs for which the grant is intended to compensate.
 - (c) because income and other taxes are expenses, it is logical to deal also with government grants, which are an extension of fiscal policies, in profit or loss.
- 16 It is fundamental to the income approach that government grants should be recognised in profit or loss on a systematic basis over the periods in which the entity recognises as expenses the related costs for which the grant is intended to compensate. Recognition of government grants in profit or loss on a receipts basis is not in accordance with the accrual accounting assumption (see IAS 1 *Presentation of Financial Statements*) and would be acceptable only if no basis existed for allocating a grant to periods other than the one in which it was received.

- 17 In most cases the periods over which an entity recognises the costs or expenses related to a government grant are readily ascertainable. Thus grants in recognition of specific expenses are recognised in profit or loss in the same period as the relevant expenses. Similarly, grants related to depreciable assets are usually recognised in profit or loss over the periods and in the proportions in which depreciation expense on those assets is recognised.
- 18 Grants related to non-depreciable assets may also require the fulfilment of certain obligations and would then be recognised in profit or loss over the periods that bear the cost of meeting the obligations. As an example, a grant of land may be conditional upon the erection of a building on the site and it may be appropriate to recognise the grant in profit or loss over the life of the building.
- 19 Grants are sometimes received as part of a package of financial or fiscal aids to which a number of conditions are attached. In such cases, care is needed in identifying the conditions giving rise to costs and expenses which determine the periods over which the grant will be earned. It may be appropriate to allocate part of a grant on one basis and part on another.
- 20 A government grant that becomes receivable as compensation for expenses or losses already incurred or for the purpose of giving immediate financial support to the entity with no future related costs shall be recognised in profit or loss of the period in which it becomes receivable.
- 21 In some circumstances, a government grant may be awarded for the purpose of giving immediate financial support to an entity rather than as an incentive to undertake specific expenditures. Such grants may be confined to a particular entity and may not be available to a whole class of beneficiaries. These circumstances may warrant recognising a grant in profit or loss of the period in which the entity qualifies to receive it, with disclosure to ensure that its effect is clearly understood.
- 22 A government grant may become receivable by an entity as compensation for expenses or losses incurred in a previous period. Such a grant is recognised in profit or loss of the period in which it becomes receivable, with disclosure to ensure that its effect is clearly understood.

OECD (1995) *Industrial subsidies: A reporting manual*

Grant Programmes

Formula

$$\text{GGBE} = \text{TNGR}$$

$$\text{NCG} = \text{TNGR} - \text{GGR (in case of reimbursable grants)}$$

Definitions

$$\text{TNGR} = \text{Total new grants provided in a given year}$$

$$\text{GRR} = \text{Total grants reimbursed during a given year}$$

**United States Federal Government (2010) *Federal Regulations:
Customs Duties Part 351 – Antidumping and countervailing duties***

§ 351.504 Grants.

- (a) Benefit. In the case of a grant, a benefit exists in the amount of the grant.
- (b) Time of receipt of benefit. In the case of a grant, the Secretary normally will consider a benefit as having been received on the date on which the firm received the grant.
- (c) Allocation of a grant to a particular time period. The Secretary will allocate the benefit from a grant to a particular time period in accordance with §351.524.

3.2. Other direct transfer of funds

WTO (1998) *Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures*

E. Loss Coverage (Recommendation 11)

The question of how, in the context of Article 6.1(a), to treat subsidies to cover operating losses raises similar questions to those with respect to debt forgiveness. That is, as in the case of debt forgiveness, inclusion of subsidies for loss coverage in an Article 6.1(a) case would be without prejudice to the separate presumption of serious prejudice to which such subsidies would give rise under either Article 6.1(b) or (c). On the other hand, any such separate presumption would not prevent subsidies of this kind from being included in a calculation of ad valorem subsidization in the context of Article 6.1(a).

To the extent that subsidies in the form of loss coverage are at issue in a given case under Article 6.1(a), it is recommended that the cost to the government be measured as the amount of the loss coverage provided. This amount normally should be treated as a grant, unless the loss coverage takes some other form.

WTO (1998) *Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures*

K. Assumption of Legal Obligations (Recommendation 17)

As a general matter, it is recommended that the cost to government of the assumption of legal obligations, to the extent that this involves an element of subsidization, be calculated as the amount of the obligations assumed. Various kinds of legal obligations were identified as possibly belonging in this category. These include the coverage by a government of severance pay, of other legally-imposed employment costs, possibly of certain environmental costs, and of similar obligations. This amount normally should be treated as a grant.

WTO (1998) *Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures*

P. Worker Training (Recommendation 21)

The question of the cost to government of providing worker training in the context of Article 6.1(a) is recognized to raise a number of issues. First, it is noted as a general principle that in the most straightforward case, government-subsidized or government-provided worker training can be similar to a wage subsidy. That is, if a government's payment for the worker training relieves a company of a cost that it otherwise would have had to pay, a subsidy that would be relevant under Article 6.1(a) may exist.

In addition, the question of whether a firm has a legal obligation to train its workers is relevant. That is, when a firm has a legal obligation, such as to retrain laid-off workers, and the government assists the company in paying for such retraining, a subsidy would exist to the extent that the government has incurred a cost in providing the assistance which would otherwise have been borne by the firm. It is recommended that such a subsidy be treated as a grant.

FAO (2004) *Guide for identifying, assessing and reporting on subsidies in the Fisheries Sector*

6.5.12. Training and extension

Various types of specialized training and extension services are sometimes available for the fisheries industry, fully or partly funded by the government. There may be training courses on fish handling, safety at sea or in seamanship. Many governments provide extension services with a view to facilitate, for example, the introduction of technologies in the processing sector or to promote the use of better seeds in rural aquaculture. Generally, these types of activities are Category 2 subsidies. With regard to assessing their value, improved skills usually mean improved production with increased income as a result. If such an effect can be deduced directly from the subsidized training or extension scheme and we can measure the effect, this could also be used as for the assessment of the value to the industry.

To assess the cost to the government of these services may be fairly easy, in particular if they are provided through separate administrative entities, such as a training institute or an extension unit of a fisheries division. With regard to the value of training courses to the industry, market prices may be available for similar tuition in other subject fields.

UNSD (2010) *Glossary of terms*

Subsidies on payroll or workforce: these consist of subsidies payable on the total wage or salary bill, or total workforce, or on the employment of particular types of persons such as physically handicapped persons or persons who have been unemployed for long periods. The subsidies may also be intended to cover some or all of the costs of training schemes organized or financed by enterprises.

**United States Federal Government (2010) *Federal Regulations: Customs Duties*
*Part 351 – Antidumping and countervailing duties***

§ 351.513 Worker-related subsidies

- (a) Benefit. In the case of a program that provides assistance to workers, a benefit exists to the extent that the assistance relieves a firm of an obligation that it normally would incur.
- (b) Time of receipt of benefit. In the case of assistance provided to workers, the Secretary normally will consider the benefit as having been received by the firm on the date on which the payment is made that relieves the firm of the relevant obligation.
- (c) Allocation of benefit to a particular time period. Normally, the Secretary will allocate (expense) the benefit from assistance provided to workers to the year in which the benefit is considered to have been received under paragraph (b) of this section.

FAO (2004) *Guide for identifying, assessing and reporting on subsidies in the Fisheries Sector*

6.5.3. Vessel decommissioning programmes

Programmes involving financial transfers for reducing fishing capacity are used in many countries. These schemes involve financial compensation for scrapping or exporting fishing vessels to third countries. The effects on the profits of the industry of such programmes are complex and depend on how exactly the scheme is designed and implemented. If the scheme is used to facilitate the exit—for example the retirement—of individual fishers from the industry, the benefits will accrue to the remaining operators through the sharing of existing resources between a smaller number of actors and thus improve their productivity and profits—assuming that the decommissioning grant is not at all used for reinvestment in the sector and that there are no new entrants into the fishery, replacing those that left. In the longer term and if the decommissioning scheme has entailed a sustainable decrease in real fishing effort, the effect may also be felt through better catches thanks to an improved resource base. This scenario is of course assuming that overcapacity and overfishing were problems in the first place.

If the decommissioning grant is instead reinvested in the sector, the subsidy would mean a more direct capital injection into the industry that can be used either for covering operating expenses or for other investments. The effect on productivity and catch volumes will depend on the impact of these expenditures on the total fishing effort and the state of the resources. If the decommissioned vessel is not scrapped but transferred into another fishery, its effect on this other fishery also has to be considered in order to assess the total effect of the scheme on the fishing industry as a whole.

Accordingly, a vessel buyback or scrapping scheme can have a value to the fishing industry in several ways depending on the characteristics of the particular programme. There are values created to the industry in the form of the increased resource base left for the remaining fishing vessels to exploit in addition to the compensation payments paid for the scrapped or exported boats. The direct financial transfers made in connection with buy-back programmes can be classified as Category 1 subsidies. If the price paid for the vessel by the government scheme is higher than the market price that could have been obtained had the vessel been put on the market, this surplus constitutes the value of the subsidy to the industry. The cost to the government would be the actual payments plus any related administrative cost. The more implicit resource related effects are better reviewed in the context of Categories 3 and 4 subsidies. These effects can be immediate or in the longer term and are related to the value of free access to resources (see section 6.5.19). There can be either an explicit increase in quotas for these operators or an implicit possibility to catch more fish thanks to less competition.

Licence, permit and quota buyouts are similar schemes likely to have comparable effects as the decommissioning programmes, depending on the particular conditions and circumstances. In the processing sector, equivalent schemes exist for factory rationalization, i.e., incentives for reducing capacity. Retraining programmes—for fishers or other employees of the sector—with a view to facilitate their redeployment in other industries, i.e., outside the fisheries sector, are measures that also aim at reducing the capacity of the sector.

6.5.13. Inspection and certification services

Strict quality requirements in the world's main fish importing countries have put pressure on quality assurance for export products. European importers (the EC; now the EU) issued the first regulations with regard to the control of fishery products in 1991 and have since expanded the system to the so called “own health checks” which extends the application of hygiene and quality controls to the whole production chain.

Also other countries have introduced similar regulations (FAO 2000b). If the required inspection and certification services are provided to the exporting industry free of charge or at a price lower than the related operational costs, we may want to classify the services as a Category 2 subsidy.

The production standards stipulated by the importers also generally require investments in equipment and infrastructure. If these investments are paid for by the industry, the regulation may initially have a negative impact on the industry's profits and only pay off in the medium or longer-term. Regulatory measures should be classified as Category 3 subsidies. The assessment of the value to the industry of the regulation and the services provided should preferably be based on an estimate of the value of the increased exports to the markets requiring the certification and the costs of fulfilling the conditions.

6.5.15. Payments to foreign governments to secure access to fishing grounds

In some countries, domestic fishers are granted the privilege of free access while foreigners pay some sort of access fee. When a government pays these access fees in foreign countries for its own fishing fleet, these could be considered as Category 2 subsidies with a value to the industry equivalent to the actual annual cost of the fishing right.

6.5.16. Government research and development (R & D)

Governments often fund research institutes and activities. Certain R & D, leading to efficiency improvements, is likely to be carried out also by the industry and government funded research is then a direct support to these activities. Other research may be more related to fisheries management and resource protection and could, for example, provide management information or lead to the development of gear that is then imposed on the industry through gear regulations. R & D activities are probably best classified as Category 2 subsidies but those closely related to fisheries management could possibly also be included with the regulatory measures in Category 3. With regard to the assessment of their costs and values, we are likely to encounter similar difficulties as we are for fisheries management and the industry value may have to be assumed to be the same as the government cost.

World Bank (2005) *Cotton taxation in Uzbekistan: Opportunities for reform*

Irrigation subsidies

Irrigation subsidies used in the calculation include only the approved amounts for irrigation operation and maintenance costs funded by the Government. Allocation to cotton production has been made according to the area and estimation of water use. In addition, irrigation is subsidized because there is no charge for depreciation and water and electricity used by the irrigation system is highly subsidized. Electricity subsidies are separately calculated. Water subsidies are not included.

Electricity subsidies

These are simply the payments made from the Ministry of Finance to cover electricity costs of irrigation pumping stations. An alternative way to estimate these costs would be to use Long-run Marginal Cost of power as a benchmark, and calculate the full cost recovery amount needed for electricity. The latter procedure would significantly increase the value of subsidies for electricity.

CHAPTER 4. CREDIT-RELATED SUBSIDIES

4.1. Interest Rate Subsidies

WTO (1998) Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures

C. Interest Rate Subsidies (Recommendation 10)

The question of interest rate subsidies, as distinct from subsidized government loans, was discussed. In particular, it was noted that such subsidies might arise where the loan itself was obtained from a commercial source, with the government covering some or all of the interest cost.

Two possible cases of interest rate subsidies were identified. The first would be where, as of the receipt of the loan, or at some later point, the government subsidized the interest expense on an ongoing basis as payments became due. In this situation, it is recommended that the subsidy be calculated as the amount of interest covered by the government. It is recommended that such interest amounts be treated as a series of recurring grants provided on the dates on which interest payments were due.

The second case would be where the government provided, at a certain point in time, a lump sum payment to offset the recipient's interest expenses (whether with respect to past interest, paid or unpaid, or with respect to future interest expenses). In this situation, it is recommended that the amount of the subsidy, once paid, be treated as a non-recurring grant.

European Commission (1998) Guidelines for the calculation of the amount of subsidy in countervailing duty investigations⁶

and Government of India (2006) Customs Tariff Rules Amendment

(v) Interest rate subsidies

In the case of an interest rate subsidy, the amount of subsidy [EC: is] [India: should be] the amount of interest saved by the recipient company during the investigation period.

OECD (1995) Industrial subsidies: A reporting manual

Interest Rate Subsidy Programmes

Formula

GGBE = TNLS

NCG = IRS

⁶ © European Union, <http://eur-lex.europa.eu>. Only European Union legislation printed in the paper edition of the *Official Journal of the European Union* is deemed authentic.

Definitions

- TNLS = Total new loans leveraged by interest rate subsidies
- IRS = Interest rate subsidies granted during the year

4.2. Preferential loans

WTO (1994) Agreement on Subsidies and Countervailing Measures

Article 14 Calculation of the Amount of a Subsidy in Terms of the Benefit to the Recipient

- (b) a loan by a government shall not be considered as conferring a benefit, unless there is a difference between the amount that the firm receiving the loan pays on the government loan and the amount the firm would pay on a comparable commercial loan which the firm could actually obtain on the market. In this case the benefit shall be the difference between these two amounts.

WTO (1998) Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures

B. Loans (Recommendation 9)

Two different kinds of loans, ordinary loans and contingent-liability loans, were discussed in the context of cost to government.

1. Ordinary loans (Recommendation 9, Part A)

It is recommended that the cost to the government of an ordinary loan be measured based on the extent to which the effective interest rate charged on the loan provided is lower than the appropriate government bond rate in the year in which the loan is given. For short-term government loans (i.e., loans with a maturity of less than one year), the appropriate bond rate would be that on short-term government bonds of comparable maturity. For long-term government loans, the appropriate bond rate would be that on long-term government bonds of comparable maturity. As a simplified example, if the appropriate government bond rate was 5 per cent, and the interest rate on the loan was 4 per cent, the cost to the government of providing the loan would be one percentage point of interest. Any grace period provided by the government loan, during which time interest did not accrue, also would be considered a cost incurred by the government, calculated using the appropriate government bond rate. For purposes of establishing a relatively simple and predictable calculation methodology, it is further recommended that the benefits thus calculated be deemed to arise on a year-by-year basis over the life of the loan (i.e., as a series of recurring grants). The Group also notes that deferrals of principal and/or interest normally will give rise to additional costs to the government.

2. Contingent liability loans (Recommendation 9, Part B)

It was noted that contingent liability loans are similar to reimbursable grants, in that they are repayable only upon the occurrence of some future event, such as achievement of a certain level of profitability. Because it is impossible to predict the occurrence of future events, it is recommended, as for reimbursable grants, that contingent liability loans be treated as if they were a series of short term interest-free loans for purposes of determining the cost to the government.

If such loans eventually were repaid, the amount of the subsidy would be calculated in accordance with the methodology described above for ordinary loans.

It was recognized that, as with reimbursable grants, it might be determined that a given contingent liability loan would not be repaid. In the event that such a conclusion was reached, it is recommended that such loans be treated as grants. In these circumstances, the amount of the subsidy (i.e., the cost to the government) would be the face amount of the loan less any repayments, plus accrued interest calculated using the government's long-term bond rate.

Given that where a contingent liability loan has become an outright grant this is similar to an instance of debt forgiveness, it is recommended that the allocation period for any outstanding contingent loan amount begin on the date as of which it is determined that this amount effectively has become an outright grant. This approach is recommended to ensure that the principal amount of contingent liability loans is captured in Article 6.1(a) subsidy calculations where such loans have been outstanding for lengthy periods and have no realistic prospect of being repaid. To do otherwise would mean that only an imputed interest cost associated with what effectively were outright grants would be reflected in Article 6.1(a) calculations.

WTO (1999) *Informal Group of Experts on calculation issues related to Annex IV of the Agreement on Subsidies and Countervailing Measures*

The Group considered the question of commercial risk. As an example of the issue, the relationship of commercial risk and the provision of government loans was discussed. In this connection, the Group recalled its recommendation (Recommendation 9) that the cost to government of loans should be determined on the basis of a government borrowing rate for debt with comparable maturity to that of the loan in question. An issue that was posed by the United States, generally reflected in document G/SCM/W/416/Suppl.2, was whether this was sufficient given that certain borrowers posed more of a risk, and thus arguably a higher cost to the government, than others.

It was pointed out that the Group's original recommendation with respect to the government's cost of providing a loan assumed that no other considerations, in particular provision for bad debts, came into play. Because of the extra risk of certain loans, however, some members of the Group argued that the government should increase the interest rate on those loans, to cover its commensurately higher cost. No consensus was reached on the question of commercial risk.

Bruce (1990) *Measuring industrial subsidies: Some conceptual issues*

a) *Low-Interest Loans.* Low-interest loans to businesses are provided by numerous government agencies in many countries ... Loans are made to qualifying business enterprises at low rates. The rates vary from programme to programme but, for the most part, are tied to the government borrowing rate. Some rates are substantially below this. Also, while the government lending agencies require the same types of collateral as private agencies in order to make the loans, they generally accept lower-rank claims, which substantially reduces the chances of recovery in the event of bankruptcy.

[S]ubsidies to business finance in the form of low-interest-rate loans can be evaluated in terms of an equivalent tax-and-subsidy programme. Specifically, one can calculate a cash subsidy equal to the difference between the rates of interest charged on the loans made by the public agencies and the rate of interest the firms would have had to pay to private lenders, times the amounts of loans made. It is reasonable to assume that this

hypothetical subsidy would be financed out of general revenues so the amount can be added to the government's revenue needs when estimating the tax side of the subsidy.

The amounts of loans made by the public agencies and the average interest earnings on them are available from the public agencies and the average interest earnings on them are available from their annual reports. The main difficulty is in estimating the interest rate that the firms would have had to pay to obtain the financing from private lenders. It could range anywhere from the prime rate to the interest rate on low-grade ("junk") bonds. While many of the firms who borrow from the public agencies could borrow privately only at high interest rates, other firms which borrow at the triple-A bond rate are no less inclined to refuse a subsidy if it is offered. Short of an analysis of the risk characteristics of each borrower, there is no way to estimate the alternative borrowing rate accurately. An arbitrary rule of thumb, such as using the simple average of the low-grade and high-grade bond rates, may be the only resort.

It should be noted that with this methodology it would be inappropriate to include the administrative cost of the agencies directly as part of the subsidy. These costs are presumably captured in the alternative market rate, assuming that the administration of public lenders is no more costly than for the private lenders. To include them would be double-counting.

...

c) *Conditional Loans*. Conditional loans are loans made by a government agency for which repayment is forgiven under certain circumstances. In effect, they are a cross between a grant and a subsidised loan. For example, the loan may be made under terms for which it is virtually certain never to be repaid, in which case it is equivalent to a cash grant although it is not reported as such in the government accounts.

To evaluate the implicit subsidy, it would be necessary to estimate the probability that the loan will not be repaid. This probability times the amount of conditional loans made will be the "grant component" of the loan. The amount of the loans minus the grant component is the "loan component". For the loan component it is necessary to determine any subsidy given through a below-market interest rate. This is done in the same way as described for low interest loans. The capitalised value of the low interest rate subsidy plus the grant component per dollar of loan is equal to the implicit subsidy per dollar of conditional loan.

d) *Equity Infusions*. When a government agency contributes to the equity of a firm, the policy could be considered equivalent to anything ranging from a cash grant to a subsidised loan. Again, these equity infusions are usually made under terms more favourable to the firm than it could receive in private equity markets. Unlike loans, the firm has no commitment to make any repayment. Thus, an equity infusion to a firm that makes no dividend payments and is not expected to do so in the foreseeable future is, for all intents and purposes, a cash grant. Where the firm's shares are publicly traded, one could estimate the market value of the shares given to the government agency in exchange for the infusion. The difference can then be treated as equivalent to a cash grant. Where market values do not exist, some estimates of the capitalised value of the firm's future dividend payments per share must be obtained to determine the subsidy component.

Government of Canada (2010) *Regulations respecting special import measures*

28. Where the subsidy in relation to any subsidized goods is in the form of a preferential loan, the amount of subsidy shall be determined by distributing, in accordance with generally accepted accounting

principles, over the quantity of goods determined in accordance with section 31, the present value of the sum of

- (a) the amount determined in accordance with section 29, and
- (b) any costs, other than interest, that would have been incurred by the recipient of the preferential loan with respect to a non-guaranteed commercial loan that the recipient could have obtained, such present value being determined as of the date the loan funds were advanced and by reference to the discount rate referred to in section 30.

29. (1) The amount referred to in paragraph 28(a) is the difference between

- (a) the amount of interest that would be payable, by the recipient of the preferential loan, on a non-guaranteed commercial loan in the same currency in which the payments for the preferential loan are expressed and on the same credit terms, other than the interest rate, as are applicable to the preferential loan, and
- (b) the amount of interest payable on the preferential loan.

(2) For the purposes of paragraph (1)(a), the interest rate is

- (a) the prevailing interest rate in the territory of the government that made the preferential loan, at the date the preferential loan was made, in respect of non-guaranteed commercial loans that the recipient of the preferential loan could have obtained, in the same currency in which the payments for the preferential loan are expressed and on credit terms, other than the interest rate, that are the same or substantially the same as the credit terms of the preferential loan;
- (b) where the interest rate described in paragraph (a) cannot be ascertained or where there is no such interest rate, the prevailing interest rate in the territory of the government that provided the preferential loan, at the date the preferential loan was provided, in respect of non-guaranteed commercial loans that the recipient of the preferential loan could have obtained, in the same currency in which the payments for the preferential loan are expressed and on credit terms, other than the interest rate, that most closely approximate the credit terms of the preferential loan; or
- (c) where the interest rates described in paragraphs (a) and (b) cannot be ascertained or where there are no such interest rates, the prevailing interest rate in the territory of the government that provided the preferential loan, at the date the preferential loan was made, in respect of non-guaranteed commercial loans that
 - (i) producers of like goods, whose financial creditworthiness is the same or substantially the same as or, in the absence of that condition, approximates that of the recipient of the preferential loan, could have obtained,
 - (ii) where subparagraph (i) is not applicable, producers of goods of the same general category, whose financial creditworthiness is the same or substantially the same as or, in the absence of that condition, approximates that of the recipient of the preferential loan, could have obtained, or

- (iii) where subparagraphs (i) and (ii) are not applicable, producers of goods of the group or range of goods that is next largest to the category referred to in subparagraph (ii), whose financial creditworthiness is the same or substantially the same as or, in the absence of that condition, approximates that of the recipient of the preferential loan, could have obtained, in the same currency in which the payments for the preferential loan are expressed and on credit terms, other than the interest rate, that most closely approximate the credit terms of the preferential loan.
30. The discount rate for the purposes of section 28 is the same as the interest rate determined in accordance with subsection 29(2).
31. The quantity of goods, for the purpose of section 28, is
- (a) where the preferential loan was, or is, to be used for operating expenses in the production, purchase, distribution, transportation, sale, export or import of subsidized goods, the estimated total quantity of subsidized goods to which the preferential loan is attributable;
 - (b) where the preferential loan was, or is, to be used for the purchase or construction of a fixed asset, the estimated total quantity of subsidized goods for the production, purchase, distribution, transportation, sale, export or import of which the fixed asset was, or will be, used for the anticipated useful life of the fixed asset;
 - (c) where the use of the preferential loan was not or is not for the purposes described in paragraph (a) or (b) or is unknown, the estimated total quantity of subsidized goods the production, purchase, distribution, transportation, sale, export or import of which was or will be carried out by the person who received the preferential loan during the weighted average useful life of fixed assets, not exceeding 10 years, used by the industry in which that person is engaged.

Earth Track (2008) *In depth: Government loan, loan guarantee, and insurance programs*

Measuring the Benefits

Interest rate subsidies are calculated by comparing what the borrower actually paid for funds and proxies for what the real cost of the funds would have been without the government program. To bound the true subsidy value, it is useful to estimate both a high and a low value. The low estimate compares the government's cost of funds to the interest rate charged. Within the US, we use the difference between the Treasury (or, in some cases, the Federal Financing Bank) borrowing rate and the interest rate charged to the borrowing entity. The high estimate uses the cost of funds to power borrowers in the private capital markets.

European Commission (1998) *Guidelines for the calculation of the amount of subsidy in countervailing duty investigations*⁷

and Government of India (2006) *Customs Tariff Rules Amendment*

Basic methodology

- (i) In the case of a loan from the government (where repayment does take place) the subsidy [EC: is] [India: should be] the difference between the amount of interest paid on the government loan and the interest normally payable on a comparable commercial loan during the investigation period [EC: (see example 2(i))].
- (ii) A comparable commercial loan would normally be a loan of a similar amount with a similar repayment period obtainable by the recipient from a representative private bank operating on the domestic market.
- (iii) In this regard, the commercial interest rate should preferably be established on the basis of the rate actually paid by the company concerned on comparable loans from private banks. If this is not possible, the investigation should consider the interest paid on comparable private loans to companies in a similar financial situation in the same sector of the economy, or, if information on such loans is not available, to any comparable private loan made to companies in a similar financial situation in any sector of the economy.
- (iv) If there are no comparable commercial lending practices on the domestic market of the exporting country, the interest rate on a commercial loan may be estimated with reference to indicators of the economic situation prevailing at the time, (notably the inflation rate) and the situation of the company concerned.
- (v) If all or part of a loan is forgiven or defaulted on, the amount not repaid [EC: will] [India: should] be treated as a grant depending on whether there was a guarantee.

Specific cases

- (vi) It should be noted that tax deferrals, or the deferral of any other financial obligation, should be considered as interest-free loans and the amount of subsidy calculated as above.
- (vii) In the case of reimbursable grants, these should also be considered as interest free loans until they are reimbursed. If they are not reimbursed, in whole or in part, they [EC: will] [India: should] be considered as grants rather than interest-free loans from the date on which non-reimbursement is established. From this date, the normal grant methodology [EC: will] [India: should] apply. In particular, if the grant is to be allocated over time, such allocation would start on the established date of non-reimbursement. The amount of subsidy [EC: would] [India: should] be the amount of the grant, minus any repayments.

⁷ © European Union, <http://eur-lex.europa.eu>. Only European Union legislation printed in the paper edition of the *Official Journal of the European Union* is deemed authentic.

(viii) The same approach would apply to contingent-liability loans. To the extent that such loans are given at a preferential rate of interest, the subsidy [*EC*: would] [*India*: should] be calculated as in paragraph (i). However, if it were to be determined that the loan would not be repaid, it [*EC*: would] [*India*: should] be treated as a grant from the date on which non-repayment was established. The amount of subsidy [*EC*: would] [*India*: should] be the amount of the loan, less any repayments.

European Commission (2007) *State Aid Scoreboard*⁸

Soft loans and tax deferrals: The aid elements in this category are much lower than the capital values of the aid. From 1995, where a Member State fails to provide data on the aid element, 15% of the total amount lent by the government is taken as a proxy, compared with 33% for previous years. This downward adjustment is explained by the lower level of the aid element that results from generally lower rates of interest in the Member States when compared with previous periods.

In the case of reimbursable advances, where a Member State does not indicate the reimbursement ratio, the aid element is taken to be 90% of all advances as the repayment ratio has shown to be very low on average.

FAO (2004) *Guide for identifying, assessing and reporting on subsidies in the Fisheries Sector*

When the fisheries industry is offered loans on favourable conditions through government institutions, these are often classified as Category 2 subsidies. A favourable loan may be a loan at a subsidized interest rate or on other favourable terms such as an extended amortization period. When there is a subsidized interest rate—or a favourable interest rate is obtained with the help of a loan guarantee—the value to the industry could be estimated by comparing the subsidized interest rate with prevailing market rates.

Government of Korea (2001) *The Customs Act*

Article 21, para 3, (2) in the case of a loan: amount equivalent to the difference between the amount paid according to the interest rate of such a loan and the amount paid according to the market interest rate.

OECD (1995) *Industrial subsidies: A reporting manual*

Credit and Loan Programmes

Formula

$$\text{GGBE} = \text{TNL}$$

$$\text{NCG} = [\text{OL} \times \text{rg}] - \text{IR} + \text{LW}$$

Definitions

$$\text{TNL} = \text{Total new credit and loans extended during a given year}$$

$$\text{OL} = \text{Amount of credits and loans outstanding at year-end}$$

⁸ © European Union, 1995–2010

rg	=	Government borrowing rate (to be provided from OECD's <i>Main Economic Indicators</i> and/or Analytical Data Base (ADB))
IR	=	Interest income received during a given year
LW	=	Loan write-offs during a given year (for conventional as well as conditional loan and credit programmes)

OECD (2009) *The PSE manual*

5.2.2. Preferential lending

Governments often intervene to reduce the cost of borrowing for agricultural producers. When agricultural producers are enabled to borrow at favourable terms compared with other businesses, transfers are created, and these need to be accounted for in producer support estimation.

Some governments subsidise interest rates charged to agricultural borrowers. The lending banks receive a budgetary compensation which covers part of the interest rate due on agricultural loans. This describes preferential lending in a number of OECD and non-OECD countries. In these cases government spending can be used as a measure of the related policy transfers.

In some cases governments rely on mechanisms of credit support that do not generate budgetary spending. Special conditions may apply, such as fixed or minimum interest rates; or credit institutions may be required to direct certain amounts of credit to agriculture. When such policies are implemented through state-owned lending institutions, the interest lost is a form of budgetary revenue foregone. Sometimes private lenders are also obliged to apply reduced interest rates to agricultural loans and to allocate certain amounts of their credit for such lending. In this case, provision of preferential credit is based on administrative regulation, and the associated support to agricultural borrowers is provided at the cost of revenue foregone by private lenders (who most likely cross-subsidise these operations through other lending). This situation is characteristic of Brazil where a large share of agricultural loans is provided under administrative control. When governments set interest rates and direct resources for lending administratively, without compensation, the associated support needs to be estimated. For OECD countries the estimates are provided by member countries, while for non-OECD countries estimation is carried out by the OECD.

The approach used is similar to a price-gap measurement, with the preferential interest rate compared [with] a reference (opportunity cost) rate. The transfers arising from preferential lending (*TPL*) are equal to the interest rate differential multiplied by the amount of credit, more formally expressed as follows:

$$TPL_Y = \sum_t (i_t^r - i_t^p) \times L_t \quad [5.1]$$

where: TPL_Y – policy transfers from preferential lending accumulated over a year Y

i_t^r – reference interest rate at point of time t in year Y

i_t^p – preferential (controlled) interest rate at point of time t in year Y

L_t – value of outstanding preferential debt at point of time t in year Y

The value of the outstanding debt (L_t) is a stock value corresponding to a specific point in time. TPL_y in Formula 5.1 is the sum of discrete values of interest foregone estimated for a number of time points in a given year. In order to capture most accurately the annual value of TPL , as many time points as possible should be included, e.g., the monthly data on outstanding credit and interest rates.

Information on the value of the outstanding debt may only be available on a quarterly or annual basis. It is possible to interpolate these data to obtain monthly estimates of outstanding debt by applying some assumptions on the evolution of the debt between the two known points in time. If data on outstanding debt [are] not available, information on the amount of new preferential loans may be used. It is possible to estimate the amount of outstanding credit by using these data and information on the standard time structure of these loans.

Estimation of transfers associated with preferential lending demands good knowledge of agricultural lending conditions, which may vary by lending programmes and types of beneficiaries and may be subject to frequent changes. It is also important to have adequate information on the values of outstanding debt and/or allocations of new preferential loans. A choice of [an] appropriate reference interest rate to represent the opportunity cost for preferential credit requires judgement based on overall knowledge of credit markets in a given country.

5.2.3. Agricultural debt concessions

Agricultural producers sometimes benefit from debt concessions provided by the government to overcome problems of bad debts, or as part of a reform package, etc. Agricultural debt forgiveness has occurred, for example, in Australia, Canada, Mexico, New Zealand, and some EU member states. Non-OECD countries, such as Brazil, Russia, Romania and Ukraine, saw severe farm finance crises in the period of transition to the market economy. The governments responded by large-scale restructurings of accumulated bad debt, often followed by further restructurings involving additional bad debts, and/or repackaging of previous schemes.

Debt concession schemes may also involve extensions of repayment periods, reduced interest on overdue debt, and partial write-offs. These concessions create transfers to debtors, which need to be quantified and included in the estimation of support, irrespective of what caused the accumulation of debt and the objectives which led the government to restructure it. For OECD countries, the estimates are usually provided by the countries themselves, while for non-OECD countries, estimation is carried out by the OECD.

The quantification of transfers associated with debt rescheduling, through the extension of the repayment period and/or reduced interest, is also based on estimating the interest foregone, as applied to preferential lending of the type discussed in sub-section 5.2.2, equation 5.1 can be used, where i_p is set at zero over the period of debt non-repayment, while for the period of repayment of the restructured debt the rate that is applied for such repayments (usually a preferential rate set below the financial market level) is used. The estimation requires the time series of outstanding overdue credit (L_t) and the relevant interest rates in order to calculate the interest-rate differential. It is necessary to establish the time structure of overdue debt – the period over which it has accumulated and how its value has been evolving during the period, as well as the schedule adopted for the repayment. In addition, the interest rate set for the repayments (i_p) needs to be obtained and an adequate reference interest rate (i_r) selected.

As concerns the transfers associated with write-offs of capital, penalties and/or interest, these values are often officially reported and should also be captured in the measured support. However, care should be taken in the attribution of these amounts to particular years. It would be incorrect to allocate a sum written off to the one

year when the writing off is implemented, as this sum represents debt accumulated over a number of years. The debt forgiven should be allocated retrospectively to the period over which it is known (or assumed) to have built up. In the absence of sufficient detail, the written-off debt can be allocated back to previous years based on the time structure of the total overdue debt subject to restructuring, or based on some other appropriate allocation principle.

United States Federal Government (2010) Federal Regulations: Customs Duties
Part 351 – Antidumping and countervailing duties

§ 351.505 Loans.

(a) Benefit —

- (1) In general. In the case of a loan, a benefit exists to the extent that the amount a firm pays on the government-provided loan is less than the amount the firm would pay on a comparable commercial loan(s) that the firm could actually obtain on the market. See section 771(5)(E)(ii) of the Act. In making the comparison called for in the preceding sentence, the Secretary normally will rely on effective interest rates.
- (2) “Comparable commercial loan” defined —
 - (i) “Comparable” defined. In selecting a loan that is “comparable” to the government-provided loan, the Secretary normally will place primary emphasis on similarities in the structure of the loans (e.g., fixed interest rate v. variable interest rate), the maturity of the loans (e.g., short-term v. long-term), and the currency in which the loans are denominated.
 - (ii) “Commercial” defined. In selecting a “commercial” loan, the Secretary normally will use a loan taken out by the firm from a commercial lending institution or a debt instrument issued by the firm in a commercial market. Also, the Secretary will treat a loan from a government-owned bank as a commercial loan, unless there is evidence that the loan from a government-owned bank is provided on non-commercial terms or at the direction of the government. However, the Secretary will not consider a loan provided under a government program, or a loan provided by a government-owned special purpose bank, to be a commercial loan for purposes of selecting a loan to compare with a government-provided loan.
 - (iii) Long-term loans. In selecting a comparable loan, if the government-provided loan is a long-term loan, the Secretary normally will use a loan the terms of which were established during, or immediately before, the year in which the terms of the government-provided loan were established.
 - (iv) Short-term loans. In making the comparison required under paragraph (a)(1) of this section, if the government-provided loan is a short-term loan, the Secretary normally will use an annual average of the interest rates on comparable commercial loans during the year in which the government-provided loan was taken out, weighted by the principal amount of each loan. However, if the Secretary finds that interest rates fluctuated significantly during the period of investigation or review, the Secretary will use the most appropriate interest rate based on the circumstances presented.

(3) “Could actually obtain on the market” defined —

- (i) In general. In selecting a comparable commercial loan that the recipient “could actually obtain on the market,” the Secretary normally will rely on the actual experience of the firm in question in obtaining comparable commercial loans for both short-term and long-term loans.
- (ii) Where the firm has no comparable commercial loans. If the firm did not take out any comparable commercial loans during the period referred to in paragraph (a)(2)(iii) or (a)(2)(iv) of this section, the Secretary may use a national average interest rate for comparable commercial loans.
- (iii) Exception for uncreditworthy companies. If the Secretary finds that a firm that received a government-provided long-term loan was uncreditworthy, as defined in paragraph (a)(4) of this section, the Secretary normally will calculate the interest rate to be used in making the comparison called for by paragraph (a)(1) of this section according to the following formula:

$$i_b = [(1 - q_n)(1 + i_f)^n / (1 - p_n)]^{1/n} - 1,$$

where:

n = the term of the loan;

i_b = the benchmark interest rate for uncreditworthy companies;

i_f = the long-term interest rate that would be paid by a creditworthy company;

p_n = the probability of default by an uncreditworthy company within n years; and

q_n = the probability of default by a creditworthy company within n years.

“Default” means any missed or delayed payment of interest and/or principal, bankruptcy, receivership, or distressed exchange. For values of p_n , the Secretary will normally rely on the average cumulative default rates reported for the Caa to C-rated category of companies in Moody’s study of historical default rates of corporate bond issuers. For values of q_n , the Secretary will normally rely on the average cumulative default rates reported for the Aaa to Baa-rated categories of companies in Moody’s study of historical default rates of corporate bond issuers.

(4) Uncreditworthiness —

- (i) In general. The Secretary will consider a firm to be uncreditworthy if the Secretary determines that, based on information available at the time of the government-provided loan, the firm could not have obtained long-term loans from conventional commercial sources. The Secretary will determine uncreditworthiness on a case-by-case basis, and may, in appropriate circumstances, focus its creditworthiness analysis on the project being financed rather than the company as a whole. In making the creditworthiness determination, the Secretary may examine, among other factors, the following:
 - (A) The receipt by the firm of comparable commercial long-term loans;

- (B) The present and past financial health of the firm, as reflected in various financial indicators calculated from the firm's financial statements and accounts;
 - (C) The firm's recent past and present ability to meet its costs and fixed financial obligations with its cash flow; and
 - (D) Evidence of the firm's future financial position, such as market studies, country and industry economic forecasts, and project and loan appraisals prepared prior to the agreement between the lender and the firm on the terms of the loan.
- (ii) Significance of long-term commercial loans. In the case of firms not owned by the government, the receipt by the firm of comparable long-term commercial loans, unaccompanied by a government-provided guarantee, will normally constitute dispositive evidence that the firm is not uncreditworthy.
 - (iii) Significance of prior subsidies. In determining whether a firm is uncreditworthy, the Secretary will ignore current and prior subsidies received by the firm.
 - (iv) Discount rate. When the creditworthiness of a firm is considered in connection with the allocation of non-recurring benefits, the Secretary will rely on information available in the year in which the government agreed to provide the subsidy conferring a non-recurring benefit.
- (5) Long-term variable rate loans —
- (i) In general. In the case of a long-term variable rate loan, the Secretary normally will make the comparison called for by paragraph (a)(1) of this section by relying on a comparable commercial loan with a variable interest rate. The Secretary then will compare the variable interest rates on the comparable commercial loan and the government-provided loan for the year in which the terms of the government-provided loan were established. If the comparison shows that the interest rate on the government-provided loan was equal to or higher than the interest rate on the comparable commercial loan, the Secretary will not consider the government-provided loan as having conferred a benefit. If the comparison shows that the interest rate on the government-provided loan was lower, the Secretary will consider the government-provided loan as having conferred a benefit, and, if the other criteria for a countervailable subsidy are satisfied, will calculate the amount of the benefit in accordance with paragraph (c)(4) of this section.
 - (ii) Exception. If the Secretary is unable to make the comparison described in paragraph (a)(5)(i) of this section or if the comparison described in paragraph (a)(5)(i) of this section would yield an inaccurate measure of the benefit, the Secretary may modify the method described in paragraph (a)(5)(i) of this section.
- (6) Allegations —
- (i) Allegation of uncreditworthiness required. Normally, the Secretary will not consider the uncreditworthiness of a firm absent a specific allegation by the petitioner that is supported by information establishing a reasonable basis to believe or suspect that the firm is uncreditworthy.

- (ii) Government-owned banks. The Secretary will not investigate a loan provided by a government-owned bank absent a specific allegation that is supported by information reasonably available to petitioners indicating that:
 - (A) The loan meets the specificity criteria in accordance with section 771(5A) of the Act; and
 - (B) A benefit exists within the meaning of paragraph (a)(1) of this section.
- (b) Time of receipt of benefit. In the case of loans described in paragraphs (c)(1), (c)(2), and (c)(4) of this section, the Secretary normally will consider a benefit as having been received in the year in which the firm otherwise would have had to make a payment on the comparable commercial loan. In the case of a loan described in paragraph (c)(3) of this section, the Secretary normally will consider the benefit as having been received in the year in which the firm receives the proceeds of the loan.
- (c) Allocation of benefit to a particular time period —
 - (1) Short-term loans. The Secretary will allocate (expense) the benefit from a short-term loan to the year(s) in which the firm is due to make interest payments on the loan. In no event may the present value (in the year of receipt of the loan) of the amounts calculated under the preceding sentence exceed the principal of the loan.
 - (2) Long-term fixed-rate loans with concessionary interest rates. Except as provided in paragraph (c)(3) of this section, the Secretary normally will calculate the subsidy amount to be assigned to a particular year by calculating the difference in interest payments for that year, i.e., the difference between the interest paid by the firm in that year on the government-provided loan and the interest the firm would have paid on the comparison loan. However, in no event may the present value (in the year of receipt of the loan) of the amounts calculated under the preceding sentence exceed the principal of the loan.
 - (3) Long-term fixed-rate loans with different repayment schedules —
 - (i) Calculation of present value of benefit. Where the government-provided loan and the loan to which it is compared under paragraph (a) of this section are both long-term, fixed-interest rate loans, but have different grace periods or maturities, or where the shapes of the repayment schedules differ, the Secretary will determine the total benefit by calculating the present value, in the year that repayment would begin on the comparable commercial loan, of the difference between the amount that the firm is to pay on the government-provided loan and the amount that the firm would have paid on the comparison loan. In no event may the total benefit calculated under the preceding sentence exceed the principal of the loan.
 - (ii) Calculation of annual benefit. With respect to the benefit calculated under paragraph (c)(3)(i) of this section, the Secretary will determine the portion of that benefit to be assigned to a particular year by using the formula set forth in §351.524(d)(1) and the following parameters:
 - A_k = the amount countervailed in year k ,
 - y = the present value of the benefit (see paragraph (c)(3)(i) of this section),
 - n = the number of years in the life of the loan,

- d = the interest rate on the comparison loan selected under paragraph (a) of this section, and
- k = the year of allocation, where the year that repayment would begin on the comparable commercial loan = 1.
- (4) Long-term variable interest rate loans. In the case of a government-provided long-term variable-rate loan, the Secretary normally will determine the amount of the benefit attributable to a particular year by calculating the difference in payments for that year, i.e., the difference between the amount paid by the firm in that year on the government-provided loan and the amount the firm would have paid on the comparison loan. However, in no event may the present value (in the year of receipt of the loan) of the amounts calculated under the preceding sentence exceed the principal of the loan.
- (d) Contingent liability interest-free loans —
- (1) Treatment as loans. In the case of an interest-free loan, for which the repayment obligation is contingent upon the company taking some future action or achieving some goal in fulfillment of the loan's requirements, the Secretary normally will treat any balance on the loan outstanding during a year as an interest-free, short-term loan in accordance with paragraphs (a), (b), and (c)(1) of this section. However, if the event upon which repayment of the loan depends will occur at a point in time more than one year after the receipt of the contingent liability loan, the Secretary will use a long-term interest rate as the benchmark in accordance with paragraphs (a), (b), and (c)(2) of this section. In no event may the present value (in the year of receipt of the contingent liability loan) of the amounts calculated under this paragraph exceed the principal of the loan.
- (2) Treatment as grants. If, at any point in time, the Secretary determines that the event upon which repayment depends is not a viable contingency, the Secretary will treat the outstanding balance of the loan as a grant received in the year in which this condition manifests itself.

4.3 Debt Forgiveness

WTO (1998) Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures

D. Debt Forgiveness (Recommendation 11)

The question of how to treat, in the context of Article 6.1(a), subsidies in the form of debt forgiveness was discussed. As one aspect of this issue, it was noted that the fact that subsidies of this type would give rise to a separate rebuttable presumption of serious prejudice under Article 6.1(d) did not mean that such subsidies necessarily would be irrelevant in the context of paragraph 6.1(a)/Annex IV. For example, it is foreseeable that a single act of debt forgiveness might be found not to have caused, by itself, serious prejudice (i.e., the presumption would have been rebutted). Nevertheless, if the overall rate of subsidization (from that subsidy plus other subsidies to the same product) amounted to more than 5 per cent ad valorem, a second rebuttable presumption would be created. Conversely, however, the fact that a given instance of debt forgiveness was involved in an Article 6.1(a) case would not prejudice the separate presumption that would exist by definition under Article 6.1(d).

To the extent that subsidies in the form of debt forgiveness are at issue in a given case under Article 6.1(a), it is recommended that the cost to the government be measured as the amount of the government outlay (i.e., the outstanding principal plus accrued interest). This amount should be treated as a grant received on the date the debt is forgiven.

European Commission (1998) *Guidelines for the calculation of the amount of subsidy in countervailing duty investigations*⁹

and Government of India (2006) *Customs Tariff Rules Amendment*

(g) Forgiveness of government-held debt

Forgiveness of debt held by government or government-owned banks relieves a company of its repayment obligations and should therefore be treated as a grant. If the subsidy is to be allocated, the allocation period should begin at the time of the forgiveness of the debt. The amount of subsidy [EC: will] [India: should] be the outstanding amount of the debt forgiveness (including any interest accrued).

United States Federal Government (2010) *Federal Regulations: Customs Duties Part 351 – Antidumping and countervailing duties*

§ 351.508 Debt forgiveness.

- (a) Benefit. In the case of an assumption or forgiveness of a firm's debt obligation, a benefit exists equal to the amount of the principal and/or interest (including accrued, unpaid interest) that the government has assumed or forgiven. In situations where the entity assuming or forgiving the debt receives shares in a firm in return for eliminating or reducing the firm's debt obligation, the Secretary will determine the existence of a benefit under §351.507 (equity infusions).
- (b) Time of receipt of benefit. In the case of a debt or interest assumption or forgiveness, the Secretary normally will consider the benefit as having been received as of the date on which the debt or interest was assumed or forgiven.
- (c) Allocation of benefit to a particular time period —
 - (1) In general. The Secretary will treat the benefit determined under paragraph (a) of this section as a non-recurring subsidy, and will allocate the benefit to a particular year in accordance with §351.524(d).
 - (2) Exception. Where an interest assumption is tied to a particular loan and where a firm can reasonably expect to receive the interest assumption at the time it applies for the loan, the Secretary will normally treat the interest assumption as a reduced-interest loan and allocate the benefit to a particular year in accordance with §351.505(c) (loans).

⁹ © European Union, <http://eur-lex.europa.eu>. Only European Union legislation printed in the paper edition of the *Official Journal of the European Union* is deemed authentic.

World Bank (2005) *Cotton taxation in Uzbekistan: Opportunities for reform*

Debts are written-off based on special resolutions issued by the government. Most of the debts write-offs concern collective farms (shirkat) being restructured into individual farms. Total debt write-offs have been allocated to the cotton sector at a rate of 85 percent. Cotton production is recognized to be the main source of debt for agricultural producers, due to the low procurement price and the payment system.

4.4 Export insurance

**United States Federal Government (2010) *Federal Regulations: Customs Duties*
*Part 351 – Antidumping and countervailing duties***

§ 351.520 Export insurance

(a) Benefit —

- (1) In general. In the case of export insurance, a benefit exists if the premium rates charged are inadequate to cover the long-term operating costs and losses of the program.
- (2) Amount of the benefit. If the Secretary determines under paragraph (a)(1) of this section that premium rates are inadequate, the Secretary normally will calculate the amount of the benefit as the difference between the amount of premiums paid by the firm and the amount received by the firm under the insurance program during the period of investigation or review.

(b) Time of receipt of benefit. In the case of export insurance, the Secretary normally will consider the benefit as having been received in the year in which the difference described in paragraph (a)(2) of this section occurs.

(c) Allocation of benefit to a particular time period. The Secretary normally will allocate (expense) the benefit from export insurance to the year in which the benefit is considered to have been received under paragraph (b) of this section.

4.5 Loan guarantees and insurance programmes

WTO (1994) *Agreement on Subsidies and Countervailing Measures*

*Article 14 Calculation of the Amount of a Subsidy in Terms
of the Benefit to the Recipient*

- (c) a loan guarantee by a government shall not be considered as conferring a benefit, unless there is a difference between the amount that the firm receiving the guarantee pays on a loan guaranteed by the government and the amount that the firm would pay on a comparable commercial loan absent the government guarantee. In this case the benefit shall be the difference between these two amounts adjusted for any differences in fees;

WTO (1998) Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures

H. Loan/Credit Guarantees (Recommendation 14)

The Group noted that guarantees can operate with respect to the guarantee beneficiary either as a borrower or as a lender. In the former case, the beneficiary is a borrower whose debt is guaranteed against the borrower's own default. In the latter case, the beneficiary is a lender, for example, through the provision of credit to its customers. A guarantee in this situation guarantees this lender against potential default by its customers.

A two-part procedure was discussed for calculating the cost to the government of loan/credit guarantees, where such guarantees are provided in the context of a programme, as opposed to on an ad hoc basis. As part one, the overall viability of the loan guarantee programme over a relatively long period (normally, the five years prior to the receipt of the guarantee) should be determined. Normally, viability could be assessed by examining the programme's financial statements over the period. If this examination revealed that the total fees paid into the programme by participating firms during the period were less than the total amount paid by the government in coverage of defaulted loans under the programme plus the costs of operating the programme, the programme would be deemed not to be viable, meaning that a cost to the government would have been incurred.

Part two would be to calculate the amount of the cost to the government to be attributed to the firm involved in the Article 6.1(a) enquiry. The first step under part two would be to calculate the cost to the government of the programme as a whole, as the difference between the total amount of fees actually paid into the programme by all of its participants (including those not involved in the enquiry) and the total amount of fees that would have been required for the programme to be viable during the relevant period. The second step would be to attribute the appropriate portion of this cost to the particular firm involved in the enquiry. This attribution would be based on that firm's share of total loan amounts guaranteed under the programme during the relevant period. Thus, under this approach, a subsidy would be attributed to the firm involved in the enquiry whether or not that particular firm had made any claim under the programme for a default. This subsidy would be deemed to have been provided on the date(s) the fees were paid by that firm.

In the case of ad hoc guarantees (i.e., those that clearly are not linked to any guarantee programme), it is recommended that the cost to government of an ad hoc guarantee, in the event that a government covers a default, be the amount of the default coverage provided, less any fees paid for the guarantee. The Group recognizes that in these circumstances, the treatment of ad hoc guarantees for purposes of Article 6.1(a) would be identical to the recommended treatment of debt forgiveness.

Some Group members expressed the view that an ad hoc guarantee imposes a cost on the providing government even where there is no default. Specifically, the expected cost of providing the guarantee could be calculated. For example, if the general default rate on government guaranteed loans or credits, or the probability of default on a specific guaranteed loan or credit, was 10 per cent, 10 per cent of the loan principal could be considered to be the cost to the government of providing the guarantee. This approach would be consistent with how some governments treat loan guarantees in their accounting and budget records. No consensus was reached on this issue.

Recommendation 14

1. It is recognized that guarantees can be provided both to borrowers (as loan guarantees) and to lenders (as credit guarantees).
2. A two-part procedure is recommended for determining the cost to the government of loan or credit guarantees, where such guarantees are provided through a programme. The first part consists of assessing the long-term viability of the guarantee programme as a whole. The second part consists of attributing to the firm involved in the Article 6.1(a) enquiry the appropriate portion of the government's cost under the programme.
3. To assess the long-term viability of a guarantee programme, it is recommended that the financial statements for the programme for a relatively long period, normally the most recent five years, be examined. If it is found that the total fees paid into the programme by participating firms during the period were less than the total amount paid by the government under the programme to cover defaulted loans plus the costs of operating the programme, the programme would not be viable.
4. In the second part of the analysis, attributing the appropriate amount of government cost under the programme to the relevant firm, it is recommended to first calculate the cost to the government of the programme as a whole. This cost should be calculated as the difference between the total amount of fees actually paid into the programme by all participants (including those not involved in the enquiry) and the total amount of fees that would have been required for the programme to be viable during the relevant period.
5. The next step in the recommended methodology would be to attribute the appropriate portion of this cost to the particular firm involved in the enquiry. This should be calculated by applying to the total cost that firm's percentage share of total loan amounts guaranteed under the programme during the relevant period. This subsidy would be deemed to have been provided on the date(s) the fees were paid by that firm.
6. In the case of ad hoc guarantees (i.e., those that clearly are not linked to any guarantee programme), it is recommended, in the event that a default is covered by a government, that the cost to government of the ad hoc guarantee be the amount of the default coverage provided, less any fees paid for the guarantee.

**WTO (1999) *Informal Group of Experts on calculation issues related to Annex IV
of the Agreement on Subsidies and Countervailing Measures***

Regarding the cost to government of ad hoc loan or credit guarantees, the Group recalled that it had recommended in its first report (Recommendation 14, paragraph 6) that in the case of ad hoc guarantees, a cost to the government should be deemed to arise in the event of a default, in which case the cost would be the full amount of the default coverage provided, less any fee paid for the guarantee. The Group also recalled that some Members had argued that an ad hoc guarantee imposes a cost on the providing government even where there is no default, i.e., the expected cost of providing the guarantee, based on the probability of a default.

The Group concluded that the concept of default-related risk¹⁰ was relevant in determining the cost to the government from ad hoc guarantees. In particular, the Group recommends that if the fee charged for an ad hoc guarantee is sufficient to cover the default-related risk at the time the guarantee is provided, there would be no cost to the government, either from the provision of the guarantee or from any subsequent default coverage. Conversely, if the fee is insufficient to cover the default-related risk at the time the guarantee is provided, there would be a cost to the government in the amount of the shortfall. The Group recommends that to be sufficient to cover the default-related risk, the fee would need at least to equal the total amount guaranteed (principal plus interest) times the default-related risk expressed as a percentage.

For example, if the principal plus interest amount guaranteed was \$100,000 and the default-related risk (i.e., the government's net probable cumulative monetary loss) at the time that the guarantee was provided was 10%, the government would incur no cost in providing the guarantee if the fee was at least \$10,000. Even if the beneficiary defaulted, and the government had to cover the default, there would be no cost to the government, because the fees were sufficient to cover the default-related risk as it existed at the time the guarantee was provided. Conversely, continuing the same example, if the fee was \$6,000, the cost to the government of providing the guarantee would be \$4,000. This cost would not be affected by whether or not the beneficiary defaulted. The Group recommends that any such cost be treated as a grant, and allocated over the life of the guaranteed loan or credit.

The Group recognised that quantifying a risk-based cost to the government would be difficult, due to the difficulty of establishing the probability that a default would occur, and the likely amount that would be recovered with respect to a particular guaranteed debt. The Group discussed at length the most fair and transparent manner for determining the actual risk of default associated with any given guarantee. It was noted that accurately measuring the true risk of any individual ad hoc guarantee would be difficult. In particular, it was pointed out that where a guarantee is provided pursuant to a programme (as opposed to ad hoc), such a programme will operate on the basis of risk pooling. That is, if a programme is operating on a commercially viable basis, guarantees will be made to more- and less-risky participants, in such a way as to allow the guarantee programme as a whole to cover its own costs. Assessments of risk can be made in such a context because comparators (the other participants in the guarantee programme) are available.

In the case of an individual ad hoc guarantee, the Group recognised that making an individual risk assessment would be difficult, and for this reason identified some surrogates or proxies that could be used. In particular, as a general approach, risk could be assessed on the basis of a statistical analysis of commercial loans or credits made to borrowers with a similar credit rating or borrowing at similar interest rates to those paid by the borrower in question on non-guaranteed debt. Such an analysis would calculate the total amount defaulted and not recovered on all such loans and credits as a percentage of their combined principal and interest over their lifetimes. Thus, if the combined total principal and interest of the comparable commercial loans and credits amounted to \$1,000,000, and defaulted unrecovered principal and interest totalled \$100,000, the default-related risk for the guaranteed loan or credit would be estimated at 10 per cent. In this context, the Group noted that some bond rating companies (Moody's, for example), publish reports concerning default

¹⁰ Defined for purposes of this report as the government's net probable cumulative monetary loss on the guaranteed debt, that is, the probable amount (or percentage) of the combined principle and interest over the life of the debt that the government would have to pay on behalf of the beneficiary in the event of a default. This in turn would reflect both the probability of a default occurring (i.e., of a payment being missed) and the likely amount of the guaranteed debt that would eventually be recovered, including the realistic recovery value of any collateral formally held by the government (assuming that the government became responsible for the debt once a default occurred).

and loss/recovery rates, which might provide a basis for an analysis of this type.¹¹ In addition, depending on the availability of data, default and recovery information for government-operated loan/credit guarantee programmes in the country in question might be usable as a proxy, if the risk level of the ad hoc guarantee appears comparable to that of the guarantees provided under the programme. The interest rate paid by the borrower on non-guaranteed debt also might provide an indication of the default risk of the guaranteed debt. In conjunction with this, and in general, average industry-wide, or finally, country-wide default and loss/recovery information for debt of all kinds also might be usable.

The concern was expressed that the use of surrogates could be unpredictable and not fully transparent, and might be inappropriate in individual cases where the actual default-related risk was very small, thus raising questions of fairness. Thus, assessments of default-related risk would need to be made with great care, on the basis of the information (including any objective risk assessment conducted) that was available at the time the guarantees at issue were provided.

Regarding collateral held by the government in connection with an ad hoc guarantee, it was recognized that the realistic liquidation value of collateralized assets might be difficult to establish, as their book value might not correspond to their market value, and additional costs might be incurred in the liquidation process. This being said, however, it was noted that in practical terms the existence of significant collateral in favour of the government might in most instances fully cover the default-related risk, and thus eliminate any risk-based cost in providing the guarantee. By taking account of the recovery value of any collateral, the recommended methodology allows for this possibility.

The Group noted that this recommended methodology for ad hoc guarantees represents a modification of the approach in Recommendation 14, paragraph 6 of the Group's first report. Recommendation 14, paragraph 6 would in all cases treat the amount of default coverage (less any fees paid) under an ad hoc guarantee as a cost to the government, without taking into account the default risk and the sufficiency of fees and collateral to cover it. As indicated, under the new recommended approach, the occurrence or not of an eventual default would not affect the calculation of the cost to government of providing an ad hoc loan guarantee. The Group also emphasised that in modifying Recommendation 14, it is not revisiting an issue which was already decided in its first report. Rather, the Group is taking account of its conclusions on an outstanding issue, the cost/risk of ad hoc loan or credit guarantees, in order to finalise the text of Recommendation 14.

The Group also noted that the recommended risk-based assessment of cost to the government from ad hoc guarantees is generally consistent with the Group's recommended methodology (Recommendation 14, paragraphs 2-5 of the Group's first report) for the provision of guarantees under a programme. In particular, that recommendation provides, regarding the provision of guarantees, first that the programme's long-term viability be assessed, on the basis of the sufficiency of premiums/fees collected to cover defaults and operating

¹¹ For example, the Moody's report, "Historical Default Rates of Corporate Bond Issuers", which covers 1920 to the present, updated periodically, and is available on Moody's website (<http://www.moody.com/cbi.htm>), provides historical rates of default (i.e., instances of missed payments) for senior unsecured debts of corporate bond issuers in all rating categories, over different time horizons. The report also provides information on loss and recovery rates, measured by selling prices per \$100 of par value on defaulted debt instruments of differing degrees of security (senior secured bank loans, equipment trusts, senior secured bonds, senior unsecured bonds, subordinated bonds, and junior unsecured bonds) as well as on preferred stock. (The recovery rates thus take into account recovery through liquidation of collateral.) To arrive at an estimate of the percentage probability of loss, the default rate for the appropriate rating category can be multiplied by the loss rate (one minus the recovery rate) for the relevant type of debt. The appropriate rating category would be chosen based on the credit rating of the borrower and the degree of security of the debt in question. For example, if the borrower in question has a Ba rating (which pertains in the Moody's report to senior unsecured debt), and the guaranteed loan or credit in question is senior secured, the appropriate default probability would be that for Baa, rather than Ba, to take into account the greater degree of security of the guaranteed debt than that of the senior unsecured debt used as the standardised basis for the Moody's data.

expenses. If the programme is viable, an individual event of default would not be deemed to impose a cost to the government.¹² If the programme is not viable, then whether or not there is a default by a particular beneficiary, a proportionate share of the shortfall of the programme's overall income to expenses would be allocated to the firm(s) subject to the Article 6.1(a) enquiry.

Government of Canada (2010) Regulations respecting special import measures

- 31.1 (1) Where the subsidy in relation to any subsidized goods is in the form of a loan guarantee, the amount of subsidy shall be determined by distributing, in accordance with generally accepted accounting principles, over the quantity of goods determined in accordance with subsection (2), the present value of the difference between
- (a) the amount of interest and any administrative fees the person on whose behalf the guarantee is provided would have had to pay in respect of the loan had it not been for the guarantee, and
 - (b) the amount of interest and any administrative fees the person on whose behalf the guarantee is provided will actually pay in respect of the loan secured by the guarantee, such present value being determined as of the date the loan funds were advanced and by reference to the discount rate determined in accordance with subsection (3).
- (2) For the purposes of subsection (1), the quantity of goods is
- (a) where the loan secured by the guarantee was, or is, to be used for operating expenses in the production, purchase, distribution, transportation, sale, export or import of subsidized goods, the estimated total quantity of subsidized goods to which the loan is attributable;
 - (b) where the loan secured by the guarantee was, or is, to be used for the purchase or construction of a fixed asset, the estimated total quantity of subsidized goods for the production, purchase, distribution, transportation, sale, export or import of which the fixed asset was, or will be, used during the anticipated useful life of the fixed asset;
 - (c) where the use of the loan secured by the guarantee was not or is not a use set out in paragraph (a) or (b) or is unknown, the estimated total quantity of subsidized goods the production, purchase, distribution, transportation, sale, export or import of which was or will be carried out by the person who received the loan during the weighted average useful life of fixed assets, not exceeding 10 years, used by the industry in which that person is engaged.
- (3) For the purposes of subsection (1), the discount rate is
- (a) the prevailing interest rate in the territory of the government that provided the loan guarantee, at the date the loan was made, in respect of commercial loans that the recipient of the loan could have obtained, in the same currency in which the payments for the loan are expressed and on credit terms, other than the interest rate, that are the same or substantially the same as the credit terms of the loan;

¹² The Group noted that guarantee programmes might sometimes involve some form of collateral. The Group noted that if this were the case, the effects thereof on a programme's viability normally would be reflected in its overall financial results as recorded in its financial statements.

- (b) where the interest rate described in paragraph (a) cannot be ascertained or where there is no such interest rate, the prevailing interest rate in the territory of the government that provided the loan guarantee, at the date the loan was made, in respect of commercial loans that the recipient of the loan could have obtained, in the same currency in which the payments for the loan are expressed and on credit terms, other than the interest rate, that most closely approximate the credit terms of the loan; or
- (c) where the interest rates described in paragraphs (a) and (b) cannot be ascertained or where there are no such interest rates, the prevailing interest rate in the territory of the government that provided the loan guarantee, at the date the loan was made, in respect of commercial loans that
 - (i) producers of like goods, whose financial creditworthiness is the same or substantially the same as or, in the absence of that condition, approximates that of the recipient of the loan, could have obtained,
 - (ii) where subparagraph (i) is not applicable, producers of goods of the same general category, whose financial creditworthiness is the same or substantially the same as or, in the absence of that condition, approximates that of the recipient of the loan, could have obtained, or
 - (iii) where subparagraphs (i) and (ii) are not applicable, producers of goods of the group or range of goods that is next largest to the category referred to in subparagraph (ii), whose financial creditworthiness is the same or substantially the same as or, in the absence of that condition, approximates that of the recipient of the loan, could have obtained, in the same currency in which the payments for the loan are expressed and on credit terms, other than the interest rate, that most closely approximate the credit terms of the loan.

European Commission (1998) *Guidelines for the calculation of the amount of subsidy in countervailing duty investigations*¹³

and Government of India (2006) *Customs Tariff Rules Amendment*

(c) Loan guarantees

- (i) In general, a loan guarantee, by eliminating to some extent the risk of default by the borrower to the lender, will normally enable a firm to borrow more cheaply than would otherwise be the case. If the government provides the guarantee, the fact that loans are obtained at a lower interest rate than would otherwise be the case does not mean there is a subsidy, provided that the guarantee is financed on a commercial basis, since the financing of such a viable guarantee by the company would be assumed to offset any benefit of a preferential interest rate.

¹³ © European Union, <http://eur-lex.europa.eu>. Only European Union legislation printed in the paper edition of the *Official Journal of the European Union* is deemed authentic.

- (ii) In this situation, it is considered that there is no benefit to the recipient if the fee which it pays to the guarantee programme is sufficient to enable the programme to operate on a commercial basis, i.e., to cover all its costs and to earn a reasonable profit margin. In such a situation, it is presumed that the fee covers the risk element involved in obtaining a lower interest rate. If the guarantee programme is viable during the investigation period as a whole and the recipient has paid the appropriate fee, there is no financial contribution from the government and therefore no subsidy, even if the recipient involved were to default on its loans during the period.

If the scheme is not viable, the benefit to the recipient [EC: is] [India: should be] the difference between the fees actually paid and the fees which should have been paid to make the programme viable, or the difference between the amount the firm pays on the guaranteed loan and the amount that it would pay for a comparable commercial loan in the absence of the government guarantee, whichever is the lower.

- (iii) In the case of ad hoc guarantees (i.e., not part of a programme), it should first be ascertained whether the fees paid correspond to those charged to other companies in a similar position which benefit from viable loan guarantee programmes. If so, there would normally be no subsidy; if not, the method explained in (ii) above would apply.
- (iv) If no fees are paid by the recipient, the amount of subsidy [EC: is] [India: should be] the difference between the amount the firm pays on the guaranteed loan and the amount that it would pay for a comparable commercial loan in the absence of the government guarantee.
- (v) The same calculation principles would apply to credit guarantees, i.e., where the recipient is guaranteed against credit defaults by its customers.

[EC: (vi) In the particular area of export credits and guarantees, the provisions of the OECD arrangement in this area would of course guide our approach.]

European Commission (2000) *Commission Notice on the application of Articles 87 and 88 of the EC Treaty to State aid in the form of guarantees*¹⁴

3.1 In the case of an individual State guarantee, the aid element must be assessed by reference to the details of the guarantee and loan (or other financial obligation). The relevant factors include in particular the duration and amount of the guarantee and loan, the risk of default by the borrower, the price paid by the borrower for the guarantee, the nature of any security given, how and when the State could be called upon to pay a debt and the means (e.g., declaration of bankruptcy) to be used by the State to recover amounts owed by the borrower once the guarantee has been invoked.

3.2 The cash grant equivalent of a loan guarantee in a given year can be:

- calculated in the same way as the grant equivalent of a soft loan, the interest subsidy representing the difference between the market rate and the rate obtained thanks to the State guarantee after any premiums paid have been deducted, or

¹⁴ © European Union, <http://eur-lex.europa.eu>. Only European Union legislation printed in the paper edition of the *Official Journal of the European Union* is deemed authentic.

- taken to be the difference between (a) the outstanding sum guaranteed, multiplied by the risk factor (the probability of default) and (b) any premium paid, i.e., (guaranteed sum × risk premium), or
- calculated by any other objectively justifiable and generally accepted method.

For individual guarantees, the first method should in principle be the standard form of calculation, for guarantee schemes the second one.

The risk factor should be based on the past experience of defaults on loans given in similar circumstances (sector, size of firm, level of general economic activity).

The yearly grant equivalents should be discounted to their present value using the reference rate, then added up to obtain the total grant equivalent. Where, at the time the loan is granted, there is a strong probability that the borrower will default, e.g., because he is in financial difficulty, the value of the guarantee may be as high as the amount effectively covered by that guarantee.

3.3. If a financial obligation is wholly covered by a State guarantee, the lender has less incentive to assess properly, secure and minimise the risk arising from the lending operation, and in particular to assess properly the borrower's creditworthiness. Such risk assessment might also not always be taken over by the guarantor, for lack of means. This lack of incentive to minimise the risk of non-repayment of the loan might encourage lenders to contract loans with a greater than normal commercial risk and could thus increase the amount of higher-risk guarantees in the State's portfolio.

3.4. The Commission suggests that a percentage of at least 20% not covered by a State guarantee will serve as an appropriate limit for inducing the lender to properly assess the creditworthiness of the borrower, to properly secure its loans and to minimise the risk associated with the transaction. The Commission will therefore, in general, examine critically any guarantees covering the entirety (or nearly the entirety) of a financial transaction.

3.5. In the case of State guarantee schemes, the specific features of the individual cases may not be known at the time when the scheme is to be assessed. In these circumstances, the aid element must be assessed by reference to the provisions of the scheme concerning amongst others the maximum amount and duration of loans, the category of enterprise and type of project eligible, the security required from the borrowers, the premium to be paid and the interest rates obtained by them.

European Commission (2007) *State Aid Scoreboard*¹⁵

The aid element is much lower than the capital value guaranteed. Where this information on the exact amount of the aid element is not available, the losses to the Government are taken as an approximation. Where Member State data only contain figures on the capital value guaranteed, then the aid element is taken to be 10% of this figure.

¹⁵ © European Union, 1995-2010

FAO (2004) *Guide for identifying, assessing and reporting on subsidies in the Fisheries Sector*

6.5.10. and loan guarantees

When the subsidy consists of other favourable terms, the assessment of the value to the industry becomes more difficult and will have to be reviewed on a case by case basis. If we consider that the recipient firm(s) would not at all have been able to obtain a loan without a government guarantee, we may want to consider the amount of the actual loan as the value of the subsidy. With regard to the government cost, it would be appropriate to consider costs related to payments for defaulted loans. If there are no such costs, the cost to the government is usually limited to the administrative cost of operating the schemes.

Government of Korea (2001) *The Customs Act*

Article 21, para 3, (3) in the case of a loan guarantee: amount equivalent to the difference between the amount paid on such a loan and the amount payable on comparable commercial loans without such loan guarantees

OECD (1995) *Industrial subsidies: A reporting manual*

Loan Guarantee and Insurance Programmes

Formula

$$\text{GGBE} = \text{TNGU}$$

$$\text{NCG} = \text{CP} - \text{FG} - \text{RG}$$

Definitions

TNGU = Total new guarantees extended during a given year

CP = Total guarantee and insurance claims paid during a given year

FG = Guarantee and insurance fees collected during a given year

RG = Recoveries realised from outstanding assets (claims) by guarantee and insurance agencies

OG = Total amount of outstanding guarantees and insurance at year-end

United States Federal Government (2010) *Federal Regulations: Customs Duties*
Part 351 – Antidumping and countervailing duties

§ 351.506 Loan guarantees.

(a) Benefit —

- (1) In general. In the case of a loan guarantee, a benefit exists to the extent that the total amount a firm pays for the loan with the government-provided guarantee is less than the total amount the firm would pay for a comparable commercial loan that the firm could actually obtain on the market absent the government-provided guarantee, including any difference in guarantee fees. See section 771(5)(E)(iii) of the Act. The Secretary will select a comparable commercial loan in accordance with §351.505(a).

- (2) Government acting as owner. In situations where a government, acting as the owner of a firm, provides a loan guarantee to that firm, the guarantee does not confer a benefit if the respondent provides evidence demonstrating that it is normal commercial practice in the country in question for shareholders to provide guarantees to their firms under similar circumstances and on comparable terms.
- (b) Time of receipt of benefit. In the case of a loan guarantee, the Secretary normally will consider a benefit as having been received in the year in which the firm otherwise would have had to make a payment on the comparable commercial loan.
- (c) Allocation of benefit to a particular time period. In allocating the benefit from a government-provided loan guarantee to a particular time period, the Secretary will use the methods set forth in §351.505(c) regarding loans.

USCBO (2004) *Estimating the value of subsidies for federal loans and loan guarantees*

Methods for Valuing Federal Loans and Guarantees

For both Treasury-rate and market-value estimates, the subsidy cost is the difference between the value of what the government gives and what it receives in a transaction. In the case of a direct loan, the government gives cash now and receives a promise of repayments of principal, interest, and fees in the future. In the case of a loan guarantee, the government commits to pay off the lender if the borrower defaults. For that commitment, the government often receives fees paid by the borrower. When the borrower is a publicly traded corporation, the government sometimes also receives compensation in the form of warrants to purchase stock. (A warrant is a type of call option that gives the government the right to buy shares of the company's stock in the future for a predetermined price.) To calculate the net cost of such a loan guarantee, it is necessary to value all of the components of the agreement: the guarantee itself, the fees, and the warrants. This section explains various methods for determining that value, and the next section applies some of those methods to the guarantees, fees, and warrants in two large federal credit deals.

The Treasury-Rate Approach

Under current practice, the first step in estimating subsidy costs for a direct or guaranteed loan is to project the government's expected cash inflows and outflows from the transaction. Projected cash flows include the disbursement of principal, expected repayments, and fees. Expected values for the government's cash receipts depend on the probability of default each year, the recovery rate on defaulted loans, the planned repayment (amortization) schedule of a loan, estimated voluntary prepayments, and the fee schedule. As required by the FCRA, projected future cash flows are discounted at Treasury rates to obtain the present value of the direct loan or guarantee.

A few simple examples illustrate the process. First, suppose a federal agency makes a direct loan of \$100 for one year at the government's borrowing rate of 5 percent. If the loan is free of credit risk, the agency is certain of being repaid \$105 in principal and interest at the end of the year. Under credit reform, the value to the government of that loan at its origination is the discounted present value of \$105 in one year. Using the government's borrowing rate of 5 per cent as the discount rate, the loan value (V) is:

$$1) V = \$105/1.05 = \$100$$

Because the loan is repaid in full with interest, the present value of the future repayment (\$100) is equal to the amount advanced (\$100), so the cost of the loan to the government is zero.

Second, suppose the agency makes a loan for the same amount on the same terms but with some credit risk involved. On the basis of experience, the agency projects that 25 per cent of loans like this one will default at the end of a year. In such defaults, the government expects to recover only \$30 from the borrower. Under the current approach, the value of this loan to the government is the present value of the weighted average expected return, with the weights being the probability of default and repayment in full, respectively.¹⁶ That is:

$$\begin{aligned} 2) V &= 0.25 (\$30/1.05) + 0.75 (\$105/1.05) \\ &= 0.25 (\$28.57) + 0.75 (\$100) \\ &= \$82.14 \end{aligned}$$

In that case, the government has given greater value (\$100) than it expects to receive, on average, in return (\$82.14). The cost (C) of the direct loan is the difference between value given and received. That is:

$$3) C = -\$100 + [0.25 (\$28.57) + 0.75 (\$100)] = -\$17.86$$

Third, suppose that instead of making a direct loan, the agency simply guarantees that a private lender making the loan to the same borrower on the same terms will be paid in full if the borrower defaults. As guarantor, the government will have to pay off the lender 25 per cent of the time, in each such case giving the lender \$105 in principal and interest and collecting \$30 from the borrower. The government's cost will be the discounted present value of those net payments (given that 75 per cent of the time the government will pay nothing). That is:

$$\begin{aligned} 4) C &= 0.25 [(-\$105/1.05) + (\$30/1.05)] + 0.75 (\$0) \\ &= 0.25 [-\$100 + 28.57] + 0 \\ &= -\$17.86 \end{aligned}$$

which is the same as the cost to the government of the direct loan in the previous example. That result illustrates the general principle that the cost of a direct loan is the same as the cost of a guarantee made on the same terms with the same risks. In both cases, the budgetary cost is the present value of expected losses.

Although those examples are illustrative, they oversimplify the analytical difficulty of accurately projecting future cash flows from federal credit activity. Most federal direct and guaranteed loans have a longer maturity than one year, so defaults and recoveries are spread over a longer period. Moreover, the probability of default and the amount expected to be recovered are likely to vary with many things, including the length of time since origination.

More important, defaults do not occur randomly. They result from economic decisions and factors that can be used to project cash flows more accurately. For example, borrowers rarely default on loans when the value of the asset used as collateral exceeds the amount of the unpaid loan balance. Instead, they can sell the asset, pay off the loan, and keep the difference. To predict defaults and the associated cash flows on some

¹⁶ See Congressional Budget Office, *Estimating the Costs of One-Sided*.

loans, therefore, budget analysts could project the expected evolution of the price of the borrower's assets along with the unpaid balance of the loan. As the price of a collateral asset falls, the probability of default increases. Thus, the probability of default at each point in time can be determined from the probability distribution of asset prices. And those distributions can be projected into the future on the basis of the starting price of the asset, its volatility, and its expected rate of return.

Prepayments—which are permitted without penalty for most federal credit programs—also affect the expected cash flows to the government from direct loans and guarantees. Prepayments extinguish the risk of default and terminate the collection of fees. Like defaults, prepayments are usually economically motivated and can be predicted from rising asset values and other factors associated with attractive refinancing opportunities, such as declining interest rates. Successfully projecting those factors can significantly improve the accuracy of estimates of cash flows to the government.

In practice, time and resource limitations often preclude such detailed modeling of projected cash flows for subsidy estimates. Budget analysts have a variety of simpler methods available for assessing the government's exposure to the risk of default or prepayment—including, for example, the use of historical default rates for loans with specific credit ratings. However, focusing on the future evolution of the value of the borrower's assets is consistent with the rules of credit reform and is a straightforward means of getting at the economic motive for default. It is also the method that most closely parallels modern private-sector methods for estimating the value of credit guarantees. CBO is currently exploring the usefulness of those methods to budget analysts, both for improving the accuracy of cash flow projections and for providing additional information about the cost of risk.

Risk-Adjusted Discount Rates and Options-Pricing Methods

As with Treasury-rate estimates, producing market-value estimates of subsidy costs also requires estimating the probability distribution of cash flows over the life of a loan or guarantee. The key difference is that the rates used to discount projected cash flows reflect the market price of risk. The financial sector commonly uses several methods to incorporate the price of market risk into estimates of value. For securities that are actively traded, the simplest and most reliable approach is to rely on observed market prices. For loans and guarantees for which market prices are unavailable or unreliable, one alternative is to use an adjusted-discount-rate (ADR) method. Another is to apply options-pricing methods.

Adjusted Discount Rates

The ADR method adds a spread—the difference between the interest rate on a Treasury security and the rate on a risky security—to Treasury rates and uses the resulting adjusted rate to discount expected cash flows associated with a loan. That higher rate results in a smaller present value of expected future payments, reflecting the cost of market risk. As before, the subsidy cost of a loan or loan guarantee is the extent to which the present value of expected payments falls short of the loan principal. The procedure is the same for both loans and loan guarantees because, in either case, the loss to the government reflects the shortfall in expected repayment value.

To illustrate, consider the previous example of a \$100 one-year loan with a 25 per cent chance of default and an expected recovery of \$30 in the case of default. If the risk-adjusted discount rate is 7 per cent instead of the risk-free rate of 5 per cent used in equation 2, the estimated market value of the loan will be:

$$5) V = 0.25 (\$30/1.07) + 0.75 (\$105/1.07)$$

$$\begin{aligned} &= 0.25 (\$28.04) + 0.75 (\$98.13) \\ &= \$80.61 \end{aligned}$$

That value is \$1.53 less than the estimated value with risk-free discounting; thus, the subsidy cost of the loan is higher by the same amount—\$19.39 instead of \$17.86. As is always the case, the value of a guarantee on that loan is identical to the subsidy on the loan, because the guarantor (the government) makes up for the difference between the principal of the loan and the value of what is repaid, which is the \$19.39 subsidy cost.

One difficulty in applying the ADR method to a loan or guarantee is that the implicit market risk—and hence the appropriate discount rate—can vary significantly over the life of the loan. Another issue is that spreads between Treasury rates and private lending rates are influenced by a variety of factors other than market risk, such as differential tax treatment, transaction costs, and liquidity. Some or all of those other factors could be considered legitimate elements of the opportunity cost to the government of making or guaranteeing loans since they affect people’s willingness to pay for those credit services. If such factors were considered significant, adjustments would be necessary to reflect only that part of the rate spread attributable to market risk.

Options Pricing

The general idea behind options-pricing methods is that assets with the same payoffs must have the same price; otherwise, investors would have the opportunity to earn a risk-free profit by buying low and selling high. The options-pricing method that CBO used for this analysis—the binomial pricing model—exploits that “no arbitrage” assumption by inferring the value of an option (in this case, a loan guarantee) from the price of a portfolio of assets that has the same payoff to the government as the guarantee.¹⁷ A highly useful feature of that approach is that the payoff from a loan guarantee can be approximately replicated using a portfolio made up of risk-free bonds and assets of the borrowing firm, all of whose prices can be estimated.

In principle, both options pricing and risk-adjusted discount rates should yield identical subsidy estimates. As a practical matter, they entail different types of approximations. Because options-pricing methods account for the changing risk of loan guarantees over time, they are likely to be more accurate at estimating the market value of subsidies—but only when the necessary data and models are available. Otherwise, they may be difficult or cumbersome to apply.

The practices of private financial institutions offer some guidance about which method is likely to prove the most accurate and feasible in particular cases. Options-pricing methods are often used for estimating the value of credit guarantees to businesses, which suggests that they are most suitable for credit to commercial enterprises. In those cases, the fact that things other than market risk can affect interest rate spreads is less relevant, because the value of the reference assets used for pricing (generally, publicly traded stocks) are less sensitive to those nonrisk factors. Private financial institutions also rely on options pricing methods to value the option to prepay residential mortgages. Hence, those methods may be applicable to the many government mortgage programs that include a prepayment option. In addition, analysts have used options-pricing methods to value deposit insurance.¹⁸

¹⁷ Appendix B provides an example of how the binomial pricing model might be used to estimate the value of a loan guarantee. For more information about such models, see Robert L. McDonald, *Derivatives Markets* (New York: Addison-Wesley, 2003), Chapter 10.

¹⁸ Alan Marcus and Israel Shaked, “The Valuation of FDIC Deposit Insurance Using Option-Pricing Estimates,” *Journal of Money, Credit, and Banking* (November 1984), pp. 446-460; and Ehud Ronn and Avinash Verma, “Pricing Risk-Adjusted Deposit Insurance: An Option-Based Model,” *Journal of Finance* (September 1986), pp. 871-895.

Options-based methods are rarely used, however, to value loans or loan guarantees extended to individuals because of the difficulty of estimating the required variables, such as expected rates of return on borrowers' assets. For federal loans or guarantees made to individuals (such as student loans), a more standard approach would be to use private-sector rates of return on consumer credit of similar quality to identify a risk-adjusted discount rate.¹⁹ That rate would be used to discount expected net cash flows and thus to calculate the difference between those flows and the loan principal.

Other federal credit programs—such as loan assistance to sovereign states, municipalities, and special-purpose enterprises—do not fit directly into either the commercial or consumer categories. Estimating the cost of such programs is difficult even under current budgetary rules because there often is little or no experience with a similar transaction on which to draw. In some of those cases, an options-pricing approach is likely to be feasible; in others, using the ADR method will be preferable.

¹⁹ That rate, which reflects the cost of the capital backing the loans, is generally lower than the quoted borrowing rate, which includes additional compensation for default losses. For an extensive discussion of the cost of capital, see, for example, Richard Brealey and Stewart Myers, *Corporate Finance*, 7th ed. (New York: McGraw Hill, 2003).

CHAPTER 5. GOVERNMENT EQUITY PARTICIPATION

WTO (1998) Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures

G. Equity Infusions (Recommendation 13)

The Group deemed that the methodology for determining the cost to the government of a subsidy conferred through the provision of equity would depend upon whether or not the recipient firm's stock was publicly traded. It was recognized in this connection that the provision of equity by a government to a firm does not necessarily constitute a subsidy. Only if there is a benefit to the recipient from the provision of the equity will a subsidy exist.

Where the recipient firm's stock is publicly traded, the Group recommends that the cost to the government, if any, of an equity infusion by the government be determined by comparing the price the government actually paid to the firm for the equity with the relevant market price for the equity. If the government paid more than the relevant price for the equity, the cost to the government would be the amount of the overpayment. This overpayment would be treated as a grant for purposes of the calculation of ad valorem subsidization.

In cases where there is no market price for the shares, determination of whether and to what extent a subsidy is provided will be less straightforward. The Group noted that if a subsidy exists, the cost thereof to the government should be calculated in accordance with the general principles of this report. No consensus was reached as to specific methodology in this regard.

Government of Canada (2010) Regulations respecting special import measures

35.1 Where the subsidy in relation to any subsidized goods is in the form of the acquisition of shares, by a government, in a corporate enterprise, the amount of subsidy shall be determined by distributing, in accordance with generally accepted accounting principles, over the estimated total quantity of subsidized goods to which the subsidy is attributable, the difference between

- (a) the amount the government paid or agreed to pay for the shares, and
- (b) the fair market value of those shares immediately before the government's decision to acquire the shares became public.

European Commission (1998) Guidelines for the calculation of the amount of subsidy in countervailing duty investigations²⁰

and Government of India (2006) Customs Tariff Rules Amendment

(f) Government provision of equity capital

- (i) Government provision of equity capital [*EC*: is not] [*India*: should not be] considered as conferring a benefit, unless the investment decision can be regarded as inconsistent with the usual investment practice (including for the provision of risk capital) of private investors in the exporting country concerned.

²⁰ © European Union, <http://eur-lex.europa.eu>. Only European Union legislation printed in the paper edition of the *Official Journal of the European Union* is deemed authentic.

- (ii) Therefore, the provision of equity capital does not of itself confer a benefit. The criterion is whether a private investor would have put money into the company in the same situation in which the government provided equity. On the basis of this principle, the matter has to be dealt with on a case-by-case basis, [EC: taking account of the Commission's practice as regards State aid policy in this area and the practice of the Community's main trading partners].
- (iii) Clearly, if the government buys shares in a company and pays above the normal market price for these shares (taking account of any other factors which may have influenced a private investor), the amount of subsidy is the difference between the two prices.
- (iv) As a general rule, in cases where there is no market in freely-traded shares, the government's realistic expectation of a return on the price paid for equity should be considered. In this regard, the existence of an independent study demonstrating that the firm involved is a reasonable investment is the best evidence; if this is not present, the onus is on the government to demonstrate on what basis it can justify its expectation of a reasonable return on investment.
- (v) If there is no market price and the equity injection is made as part of an ongoing programme of such investments by the government, close attention should be paid not just to the analysis of the firm in question, but to the overall record of the programme over the last few years. If the records show that the programme has earned a reasonable rate of return for the government, there should be a presumption that the government is acting according to the usual investment practice of private investors with regard to the case in question. If the programme has not generated a reasonable return, the onus is put on the government to demonstrate on what basis it can justify its expectation of a reasonable return on investment.
- (vi) The existence of a subsidy [EC: is] [India: should be] determined by the information available to the parties at the time the equity injection is made. Thus, if an investigation considers an equity injection that was made several years before, the fact that the company has performed less well than expected [EC: does] [India: should] not mean that a subsidy exists, provided that the expectation of a reasonable return was justified in the light of the facts known at the time of the provision of equity.

On the other hand, a subsidy might exist even if a reasonable return has been achieved, if at the equity injection the prospect of such a return was so uncertain that no private party would have made the investment.

- (vii) In cases where there is no market price for the equity and there is a subsidy and a benefit, i.e., the government has not acted according to the usual investment practice of private investors, all or part of the equity provided must be considered as a grant.

A decision to consider all of the equity a grant would be made only in extreme cases where it is determined that the government had no intention of receiving any return on its investment and was in effect giving a disguised grant to the firm in question.

A decision on what portion of the equity to treat as a grant would depend on how near the government has come to meeting the private investor standard. This determination will have to be made on a case-by-case basis.

European Commission (2007) *State Aid Scoreboard*²¹

In line with established Commission policy, such interventions constitute aid when a private investor operating under normal market conditions would not have undertaken such an investment. See Commission communication “Application of Articles 87 and 88 of the EEC Treaty and of Article 5 of Commission Directive 80/723/EEC to public undertakings in the manufacturing sector”, OJ No C 307 of 13.11.1993, p3. This method is based on calculating the benefit of the intervention to the recipient.

FAO (2004) *Guide for identifying, assessing and reporting on subsidies to the Fisheries Sector*

Depending on circumstances, we may want to consider government provision of equity capital as a Category 1 subsidy. Also state-ownership—based on earlier state capital infusions—should be looked into by our subsidies study, i.e., partly or fully state-owned enterprises, such as government run hatcheries, ship wharves or fishing companies, as Category 2 subsidies. On the other hand, if the state capital investment is consistent with usual investment practices and is made on commercial terms, there is likely to be no cost to the government nor any value to the industry—comparing the terms on which the state investment is made with the conditions of the capital market—and hence the event cannot be defined as a subsidy. However, the issue of state capital equity and state-owned enterprises is complex and further definitions are proposed in Box 7 and examples are given in Box 8.

BOX 7

Defining state capital equity subsidies

To decide if a government equity infusion and state ownership should be considered subsidies, we usually look at whether the investments have been made on commercial terms or not. However, the situation can sometimes be confusing and to facilitate the assessment of state capital equity subsidies, the below procedure is suggested. The criteria we are looking at include whether the receiver is a company or not, whether the investment is in the form of equity and if it is made on commercial terms.

Step 1. Define whether the receiver of the investment is a company or not (as opposed to a government institution or department):

It is a *company* if:

- It carries out commercial activities
- It has a legal form that could also be (entirely) private
- It is a tax payer

²¹ © European Union, 1995-2010

Step 2. Define whether the investment is in the form of equity or not (as opposed to a loan or a grant):

It is *equity* if:

- It appears in the balance sheet as equity of the company in question
- It appears in the balance sheet of the public accounts as a non-depreciable asset (e.g., as a share holding)

Step 3. Define whether the investment is commercial or not (as opposed to for non profit reasons):

It is *commercial* if:

- Return on the investment is required (and dividends—or similar—have been received by the state during the last 5-year period)
- The investment itself has been made on commercial terms and is consistent with private sector investment practices With regard to the assessment of the subsidy, it is suggested that:

1. If the investment has been invested in a *company* as *equity* for *commercial* purposes:

- The **cost to the government** is nil except for administrative costs.
- The **value to the industry** equals the financial opportunity cost, i.e., how much would it have cost to borrow the same capital? The annual value of the subsidy is calculated as the estimated interest cost at market rates for a loan equalling the state equity of the company.

2. If the state capital has been invested in a *company* as *equity* but not for commercial purposes:

- The **cost to the government** is the actual amount of the capital invested plus administrative costs.
- The **value to the industry** is the financial opportunity cost.

3. If the state capital has been invested in a *company* but not as equity and not for commercial purposes:

- The **cost to the government** is the actual amount of the capital invested plus administrative costs.
- The **value to the industry** is the actual amount of capital invested as well as the financial opportunity cost (i.e., the same as a grant).

4. If the state capital has not been invested in a company and not as equity and not for commercial purposes it is not a state capital equity subsidy measure (but may constitute another type of subsidy).



BOX 8

State capital equity infusion and state ownership - Two examples

In Seidisbus, the state intervenes in the fisheries industry in several ways. There is, for example, a state-owned ship wharf and a few years ago, the shrimp hatchery industry was restructured. The privately owned hatchery industry had been faced with insolvency due to some unfortunate investment decisions coupled with unforeseen changes in the market. However, the government considered the industry vital for its development of exports and it was decided that it should undergo a state-supported financial restructuring. The restructuring process involved the temporary nationalization of the two company groups concerned, i.e., the government absorbed the debt of the firms and converted this debt into equity, reorganized the operations into one company and resold this company to the public. This process took three years and covered the following dealings:

- 1998: Government purchase of equity (debt conversion) US\$ 300 000
- 1999: Government payments for new investments and other restructuring costs US\$ 200 000
- 2000: Sales proceeds to the government from the privatization of the restructured company US\$ 400 000

In the fisheries subsidies study carried out in the year 2000, it was agreed that the whole operation should be considered a state capital equity subsidy according to the criteria given in Box 7 (see point 2: *state investment in a company as equity but not for commercial purposes*). It was also decided that the total cost to the government should be reported in the year 2000 since the transaction was finalized then and it appeared more appropriate to see it as one integral transaction instead of divided over three years. Ignoring the possible effects of inflation on the monetary value of the payments made, the net outlay on behalf of the government amounted to US\$ 100 000. In addition, there were substantial administrative costs involved; an estimated US\$ 20 000 had been spent on staff and overhead expenses related to the transaction. Hence, the total **government cost** reported in the year 2000 fisheries subsidies study was **US\$ 120 000**.

With regard to the calculation of the **value to the industry**, the government outlays in 1998 and 1999 were considered equivalent to “loans” that were “paid back” by the industry when the company was privatized in 2000. The value to the industry would hence be represented by the interest cost that would have had to be paid had the government capital infusions instead in fact been commercial loans. Two different rates of interest were used in the calculation according to estimates of the corresponding commercial rates; 20% for the debt conversion in 1998 (higher risk investment) and 15% for the operational investments in 1999. The part of the “loan” that was not paid back—US\$ 100 000—was valued at its face value:

- 20% on 300 000 for three years = US\$ 180 000
- 15% on 200 000 for two years = US\$ 60 000
- Remaining government contribution (300 000 + 200 000 - 400 000): 15% on 100 000 for one year = US\$ 15 000



Actual capital contribution = US\$ 100 000

The total industry value was hence estimated at **US\$ 355 000**. Concerning the state-owned ship wharf, it is a fully state-owned commercial venture. Accordingly, in our fisheries subsidies study, the **cost to the government** was considered to be *nil* (see Box 7, point 1). The total equity capital of the company is US\$ 2 000 000 and the **value to the industry** was calculated as a percentage—corresponding to the market interest rate generally applicable to the sector—of this amount: 12% on 2 000 000 = **US\$ 240 000**.

Government of Korea (2001) *The Customs Act*

Article 21, para 3, (1) in the case of equity participation: amount equivalent to the difference between such equity participation and an ordinary investment

OECD (1995) *Industrial subsidies: A reporting manual*

For purposes of reporting to this project a firm qualifying as a Government-owned enterprise is any manufacturing firm in which a public authority is exerting directly or indirectly a “dominant influence”. Such an influence can be exerted when the authority in question owns the majority of shares, holds the majority of voting rights or nominates the majority of the members of the board(s). Are also considered to be government-owned those firms in which a public authority is exerting a “dominant influence” through other means such as a “golden share”.

“Dominant influence” can also be exerted indirectly through an intermediary institution. In these cases, to determine the relative share ownership, the share-holding in the manufacturing firm is weighted with the ownership held in the Intermediary institution. Manufacturing subsidiaries of “government-owned” firms should also be included when the authority holds “dominant influence” in such firms directly or through intermediary institutions or through firms other than the mother firm, or through any combination of these means. ...

To the extent that such holdings are highly individualised by firms which, by definition, are active in a given industrial sector, such programmes should be classified under “sectoral policies” as a primary objective, and may, in appropriate cases, feature “crisis aid” as a secondary objective. ...

To measure the NCG of equity holdings by public authorities the formula given under the “Equity capital injections” section applies. This formula assumes an unchanged set of enterprises throughout the reporting period i.e., any firm included in any year where that number is highest should be included throughout the period considered. Data should be reported to the extent possible on a firm by firm basis, or by firm groupings. Particular attention is drawn to the working assumptions underlying the formula. These need to be observed with great care as they are critical to the transparency and comparability of the information to be provided.

Equity Capital Injections

Formulas

$$GGBE = \Delta \kappa$$

$$NCG = \frac{1}{2}[(C'_t + R'_t) + (C_{t-1} + R_{t-1})] \cdot rg - B - (R'_t - R_{t-1}) + D$$

Definitions

- $\Delta \kappa$ = new equity injections during each period
- C'_t = nominal value of shares at the end of each period (before share sales, new equity injections, revaluation of assets, reserve incorporations and bonus issues)
- C_{t-1} = nominal value of shares at the beginning of each period
- RR = revaluations of fixed assets and reserve incorporations
- R'_t = other equity at the end of each period (before revaluations of fixed assets and reserve incorporations)
- R_{t-1} = other equity at the beginning of each period
- rg = government borrowing rate (to be provided from OECD's Main Economic Indicators and/or Analytical Data Base (ADB))
- B = dividends
- D = write-offs of share capital
- Y = book value of shares sold

Note: As appears from the above formula, these calculations are based on three working assumptions. It is important that these assumptions be taken into consideration when measuring the components of the formula. The assumptions are the following:

- 1) All equity injection operations are carried out at the end of each period
- 2) All equity sale operations are carried out at the end of each period.
- 3) All operations relating to revaluations of fixed assets, reserve incorporations and bonus issues are carried out at the end of each period.

**United States Federal Government (2010) *Federal Regulations: Customs Duties*
*Part 351 – Antidumping and countervailing duties***

§ 351.507 Equity.

(a) Benefit

- (1) In general. In the case of a government-provided equity infusion, a benefit exists to the extent that the investment decision is inconsistent with the usual investment practice of private investors, including the practice regarding the provision of risk capital, in the country in which the equity infusion is made. See section 771(5)(E)(i) of the Act.
- (2) Private investor prices available.
 - (i) In general. Except as provided in paragraph (a)(2)(iii) of this section, the Secretary will consider an equity infusion as being inconsistent with usual investment practice (see paragraph (a)(1) of this section) if the price paid by the government for newly issued shares is greater than the price paid by private investors for the same (or similar form of) newly issued shares.
 - (ii) Timing of private investor prices. In selecting a private investor price under paragraph (a)(2)(i) of this section, the Secretary will rely on sales of newly issued shares made reasonably concurrently with the newly issued shares purchased by the government.
 - (iii) Significant private sector participation required. The Secretary will not use private investor prices under paragraph (a)(2)(i) of this section if the Secretary concludes that private investor purchases of newly issued shares are not significant.
 - (iv) Adjustments for “similar” form of equity. Where the Secretary uses private investor prices for a form of shares that is similar to the newly issued shares purchased by the government (see paragraph (a)(2)(i) of this section), the Secretary, where appropriate, will adjust the prices to reflect the differences in the forms of shares.
- (3) Actual private investor prices unavailable
 - (i) In general. If actual private investor prices are not available under paragraph (a)(2) of this section, the Secretary will determine whether the firm funded by the government-provided equity was equityworthy or unequityworthy at the time of the equity infusion (see paragraph (a)(4) of this section). If the Secretary determines that the firm was equityworthy, the Secretary will apply paragraph (a)(5) of this section to determine whether the equity infusion was inconsistent with the usual investment practice of private investors. A determination by the Secretary that the firm was unequityworthy will constitute a determination that the equity infusion was inconsistent with usual investment practice of private investors, and the Secretary will apply paragraph (a)(6) of this section to measure the benefit attributable to the equity infusion.

- (4) Equityworthiness
- (i) In general. The Secretary will consider a firm to have been equityworthy if the Secretary determines that, from the perspective of a reasonable private investor examining the firm at the time the government-provided equity infusion was made, the firm showed an ability to generate a reasonable rate of return within a reasonable period of time. The Secretary may, in appropriate circumstances, focus its equityworthiness analysis on a project rather than the company as a whole. In making the equityworthiness determination, the Secretary may examine the following factors, among others:
 - (A) Objective analyses of the future financial prospects of the recipient firm or the project as indicated by, inter alia, market studies, economic forecasts, and project or loan appraisals prepared prior to the government-provided equity infusion in question;
 - (B) Current and past indicators of the recipient firm's financial health calculated from the firm's statements and accounts, adjusted, if appropriate, to conform to generally accepted accounting principles;
 - (C) Rates of return on equity in the three years prior to the government equity infusion; and
 - (D) Equity investment in the firm by private investors.
 - (ii) Significance of a pre-infusion objective analysis. For purposes of making an equityworthiness determination, the Secretary will request and normally require from the respondents the information and analysis completed prior to the infusion, upon which the government based its decision to provide the equity infusion (see, paragraph (a)(4)(i)(A) of this section). Absent the existence or provision of an objective analysis, containing information typically examined by potential private investors considering an equity investment, the Secretary will normally determine that the equity infusion received provides a countervailable benefit within the meaning of paragraph (a)(1) of this section. The Secretary will not necessarily make such a determination if the absence of an objective analysis is consistent with the actions of reasonable private investors in the country in question.
 - (iii) Significance of prior subsidies. In determining whether a firm was equityworthy, the Secretary will ignore current and prior subsidies received by the firm.
- (5) Benefit where firm is equityworthy. If the Secretary determines that the firm or project was equityworthy (see paragraph (a)(4) of this section), the Secretary will examine the terms and the nature of the equity purchased to determine whether the investment was otherwise inconsistent with the usual investment practice of private investors. If the Secretary determines that the investment was inconsistent with usual private investment practice, the Secretary will determine the amount of the benefit conferred on a case-by-case basis.
- (6) Benefit where firm is unequityworthy. If the Secretary determines that the firm or project was unequityworthy (see paragraph (a)(4) of this section), a benefit to the firm exists in the amount of the equity infusion.

- (7) Allegations. The Secretary will not investigate an equity infusion in a firm absent a specific allegation by the petitioner which is supported by information establishing a reasonable basis to believe or suspect that the firm received an equity infusion that provides a countervailable benefit within the meaning of paragraph (a)(1) of this section.
- (b) Time of receipt of benefit. In the case of a government-provided equity infusion, the Secretary normally will consider the benefit to have been received on the date on which the firm received the equity infusion.
- (c) Allocation of benefit to a particular time period. The benefit conferred by an equity infusion shall be allocated over the same time period as a non-recurring subsidy. See §351.524(d).

CHAPTER 6. REVENUE FORGONE OR NOT COLLECTED (TAX EXPENDITURES)

WTO (1998) Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures

1.1 For the purpose of this Agreement, a subsidy shall be deemed to exist if:

- (a)(1) there is a financial contribution by a government or any public body within the territory of a Member (referred to in this Agreement as “government”), i.e., where:
 - (ii) government revenue that is otherwise due is foregone or not collected (e.g., fiscal incentives such as tax credits)²²;

6.1 General principles

WTO (1998) Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures

F. Tax Concessions (Recommendation 12)

On the general question of how to measure the cost to government of tax concessions, it was agreed that in principle, the cost to government would be the face amount of revenue foregone.²³ It was recognized that the calculation of this amount in any given case would depend on the particular type of tax concession involved. It also was noted that the concept of “tax” in this context potentially could encompass all mechanisms whereby governments generate revenue, including import and export duties, social security contributions, etc.

Australian Treasury (2005) Tax expenditures statement

The taxation system raises revenue to fund government activities. The tax system also provides government with the opportunity to promote objectives other than revenue raising. A government can achieve some of these objectives by reducing taxes in selected areas to provide incentives for economic activities or to direct assistance (in the form of lower taxes) to particular groups, individuals, businesses or activities.

A tax expenditure is a tax concession that provides a benefit to a specified activity or class of taxpayer. A negative tax expenditure occurs when these arrangements impose an additional charge rather than a benefit. Almost all tax expenditures in this statement are positive.

A tax expenditure can be provided in many forms, including a tax exemption, tax deduction, tax offset, concessional tax rate or deferral of a tax liability.

Direct expenditures could deliver the benefits of most tax expenditures. Tax expenditures deliver benefits through the taxation system and accordingly affect the budget position in a similar way to direct expenditures.

²² In accordance with the provisions of Article XVI of GATT 1994 (Note to Article XVI) and the provisions of Annexes I through III of this Agreement, the exemption of an exported product from duties or taxes borne by the like product when destined for domestic consumption, or the remission of such duties or taxes in amounts not in excess of those which have accrued, shall not be deemed to be a subsidy.

²³ Thus, this amount would not be adjusted for inflation and interest.

Tax expenditures also redistribute the tax burden between taxpayers. This is because most tax expenditures result in less tax being collected from particular taxpayers. As a result, taxes paid by individuals and businesses that do not benefit from the tax expenditure will be higher than they otherwise would need to be to raise the same total revenue.

To estimate the value of a tax expenditure, the tax arrangement that normally would apply needs to be identified. This allows the nature and extent of the concession to be established. The tax treatment that normally would apply is known as the 'benchmark'. The benchmark should neither favour nor disadvantage similar activities or classes of taxpayer. Tax expenditures are measured as deviations from the benchmark.

Not all concessional elements of the tax system are classified as tax expenditures because some are considered structural elements of the tax system and are incorporated in the benchmark. For example, the personal income tax system includes a progressive marginal tax rate structure, which results in individuals on lower incomes paying a lower marginal rate of income tax than those on higher incomes.

This arrangement is an integral design feature of the Australian tax system and is not identified as a tax expenditure.

Tax expenditures can be measured in three principal ways. These are the revenue forgone, revenue gain and outlay equivalence approaches.

- The revenue forgone approach measures how much tax revenue is reduced (relative to a benchmark) because a tax expenditure exists. It compares the current and/or prospective treatment and the benchmark treatment, assuming taxpayer behaviour is unchanged.
- The revenue gain approach measures how much revenue could increase if a particular tax concession were removed. Accurate estimation of this cost would require estimates of the secondary or behavioural effects associated with such a change.
- The outlay equivalence approach estimates how much direct expenditure would be needed to provide a benefit equivalent to the tax expenditure. This approach measures the expenditure required, in pre-tax dollars, to achieve the same after-tax dollar benefit as a tax expenditure where the direct expenditure receives the tax treatment appropriate to that type of income in the hands of the recipient.

The different methodologies used to measure tax expenditures can result in significantly different estimates of their value. Consistent with most tax expenditure statements published in OECD countries, Australia uses the revenue forgone approach to calculate tax expenditures.²⁴ This is the most reliable method of estimating the level of assistance the tax system provides to taxpayers. Tax expenditures calculated by the revenue forgone approach show tax expenditures as the difference in tax paid by taxpayers who receive a particular concession relative to similar taxpayers who do not receive that concession.

²⁴ The approaches adopted by selected OECD countries to measure tax expenditures are reported in *Tax Expenditures – Shedding Light on Government Spending Through the Tax System, Lessons from Developed and Transition Economies*, The World Bank, Washington D.C. (2003)

Canadian Department of Finance (2004) *Tax expenditures: Notes to the estimates/projections*

Framework and Methodology

The principal function of the tax system is to raise the revenues necessary to fund government expenditures. How much revenue is raised is determined by tax bases and tax rates. It is also a function of a range of measures—special tax rates, exemptions, deductions, rebates, deferrals and credits—that affect the level and distribution of tax. These measures are sometimes called “tax expenditures” because they have an impact on government revenue (i.e., they have a cost) and they reflect policy choices of the Government.

In order to define tax expenditures, it is necessary to establish a “benchmark” tax structure that applies the relevant tax rates to a broadly defined tax base—e.g., personal income, business income or consumption. Tax expenditures are then defined as deviations from this benchmark. Reasonable differences of opinion exist about what should be considered a benchmark tax system and hence about what should be considered a tax expenditure. For example, a deduction for expenses incurred in earning income is generally presented as part of the benchmark and thus not as a tax expenditure. But in some cases the deduction may confer some personal benefit, making its classification ambiguous.

This report takes a broad approach and includes estimates of the forgone revenue associated with all but the most fundamental structural elements of the tax system, such as the progressive personal income tax rate structure. This includes not only measures that may reasonably be regarded as tax expenditures but also other measures that may be considered part of the benchmark tax system. The latter are listed separately under “Memorandum Items.” For instance, the dividend tax credit is listed under this heading because its purpose is to reduce or eliminate the double taxation of income earned by corporations and distributed to individuals through dividends. Also included under this heading are measures for which there may be some debate over whether they should be considered tax expenditures or where data limitations do not permit a separation of the tax expenditure and benchmark components of the measure. This approach provides information on a full range of measures.

Calculation and Interpretation of the Estimates

The estimates indicate the annual cash-flow impact—not time discounted—to the Government of each measure, and not their long-run or steady-state revenue cost, subject to the following limitations:

- all measures are evaluated independently; and
- all other factors remain unchanged.

These methodological distinctions are important and have implications for the interpretation of the estimates. These concepts are discussed in further detail below.

Independent Estimates

The estimate of the cost of each tax expenditure is undertaken separately, assuming that all other tax provisions remain unchanged. An important implication of this is that the estimates cannot be meaningfully aggregated to determine the total cost of a particular group of tax expenditures or of all tax expenditures combined.

As explained in more detail in the following paragraphs, this restriction arises from the fact that:

- the income tax rate structure is progressive; and
- tax measures interact with one another.

Progressive Income Tax Rates

The combined effect of claiming a number of income tax exemptions and deductions may be to move an individual to a lower tax bracket than would have applied had none of the tax measures existed. To the extent that this occurs, aggregation of the individual estimates may under-represent the “true” cost to the federal government of maintaining all of them. For example, consider a taxpayer whose taxable income was \$1,000 below the level at which he or she would move from the 16-per-cent into the 22-per-cent tax bracket. Imagine that this taxpayer arrives at this level of taxable income by using two tax deductions of \$1,000 each (e.g., the deduction for home relocation loans and for registered retirement savings plan [RRSP] contributions). Eliminating either deduction by itself would increase taxable income by \$1,000 and the taxpayer’s federal tax liability by \$160. Eliminating both measures simultaneously, however, would not raise the tax liability by \$160 + \$160, but rather by \$160 + \$220.

Aggregating the individual estimates for these two items would provide a misleading impression of the revenue impact of eliminating both of them. Therefore, the personal income tax expenditure estimates in this document cannot be meaningfully aggregated to determine the total cost of a particular group of tax expenditures or of all tax expenditures combined.

While there is only one statutory tax rate for corporations, the low tax rate for small business creates a de facto progressive tax rate schedule for some corporations. In this way, the above argument is valid for the corporate income tax system as well, although the effect is not as large as for personal income taxes.

Interaction of Tax Measures

As noted above, the estimates are computed one at a time, assuming all other provisions remain unchanged. Given that tax provisions sometimes interact, the total cost of a group of tax expenditures calculated individually may differ from the dollar value of calculating the cost of the same group of tax expenditures concurrently. This is because adding the independently estimated costs of the tax provisions would result in double counting and so would not provide an accurate measure of the revenue that would be generated by simultaneously altering a group of measures.

For example, consider the non-taxation of veterans’ allowances, which reduces the recipient’s net income. Many measures, such as the medical expense tax credit, are calculated on the basis of net income. Thus, the reported estimate for the non-taxation of veterans’ allowances represents not only the direct impact on government receipts of not taxing the allowances, but also the indirect impact of the change on the cost of other tax measures (such as the medical expense tax credit) that depend on net income.

Since estimates for GST/HST tax expenditures are made using the same methodological approach as for income taxes, they too cannot be aggregated because they may interact. The following discussion of hospital rebates and zero-rating of prescription drugs illustrates the differences between independent and concurrent estimates for these two provisions.

- *Eliminating hospital rebates:* If hospital rebates were eliminated, hospitals would no longer be able to recover 83 per cent of the GST/HST they pay on their purchases.[3] However, they could continue to purchase prescription drugs on a tax-free basis because these drugs are zero-rated. The estimate for hospital rebates recognizes that the rebate would not have been claimed in respect of zero-rated prescription drugs.
- *Eliminating the zero-rating of prescription drugs:* If prescription drugs were taxed at the GST/HST rate of 7 per cent, then hospitals would pay the tax on their drug purchases but recover 83 per cent of the tax through the rebate system. Therefore, the estimate for the zero-rating of prescription drugs is calculated as net of the expected increase in the payment of hospital rebates.
- Eliminating the two measures concurrently has a revenue impact greater than the sum of the independent estimates because the GST/HST would be payable on prescription drugs and hospitals would be unable to claim a rebate for these purchases.

Aggregation of Estimates

The estimates for individual tax expenditures cannot be added together to determine the cost of a group of tax expenditures. There are two reasons for this:

- the simultaneous elimination of more than one personal income tax expenditure would generate different estimates because of progressive income tax rates; and
- given the interaction of certain tax measures, the revenue impact of eliminating two or more measures simultaneously would differ from taking the independently estimated numbers published in this document and simply aggregating them.

Federal-Provincial Interaction

The federal and provincial income tax and sales tax systems interact with each other to various degrees. As a result, changes to tax measures in the federal system may have consequences for provincial tax revenues. In this publication, however, any such provincial effects are not taken into account—that is, the tax expenditure estimates address federal revenue only.

All Other Factors Remain Unchanged

The estimates represent the amount by which federal tax revenues are reduced due to the existence of each preference, assuming that all other factors remain unchanged.

In order to evaluate the extent of the revenue reduction, the approach taken here is to recalculate federal revenues assuming the measure in question has been eliminated. The difference between this recalculated amount and actual revenues provides the quantitative estimate of the cost of the tax expenditure.

The assumption that all other things remain unchanged means that no allowance is made for: (i) behavioural responses by taxpayers; (ii) consequential government policy changes; or (iii) changes in tax collections due to altered levels of aggregate economic activity that might result from the elimination of a particular tax measure (further detail is provided below). Incorporating these factors would add a large subjective element to the calculations.



(1) Absence of Behavioural Responses

In many instances, the removal of a tax expenditure would cause taxpayers to change their behaviour to minimize the amount of extra tax they would have to pay, perhaps by making greater use of other tax measures. Therefore, the omission of behavioural responses in the estimating methodology generates cost estimates that may exceed the revenue increases that would have resulted if a particular provision had been eliminated.

The effects of this assumption can be illustrated for the GST/HST by considering the housing rebate. Homeowners are eligible for a rebate of the GST/HST they pay on the purchase of new houses. If this rebate were eliminated, the price of new houses would increase relative to the price of used houses. This, in turn, might reduce the demand for new houses while increasing the demand for used houses (which are tax-exempt). Since the dynamics of the housing market are not taken into account, the revenues obtained by eliminating the housing rebate could actually be lower than the indicated estimate.

(2) Consequential Government Policy Changes

The estimates ignore transitional provisions that might accompany the elimination of a particular measure and take no account of other consequential changes in government policy. For example, if the Government were to eliminate a particular tax deferral, it could require the deferred amount to be brought into income immediately.

Alternatively, it might prohibit new deferrals but allow existing amounts to continue to be deferred, perhaps for a specified period of time. The estimates do not provide for any such transitional relief.

Similarly, the estimates make no allowance for consequential government policy changes. For example, if capital gains on owner-occupied housing were made taxable under the personal income tax system, an argument could be made that the cost of maintenance should be deductible in the same way as other investment expenses.

(3) Impact on Economic Activity

The estimates do not take into account the potential impact of a particular tax provision on the overall level of economic activity and thus aggregate tax revenues. For example, although eliminating the low tax rate for small business could generate a significant amount of revenue for the Government, the level of activity in the small business sector could decline. That in turn could cause job losses, a reduction in taxable income and, hence, a reduction in the amount of tax revenue collected. Furthermore, the estimates do not include speculation on how the Government might use the additional funds available to it and the possible impacts this could have on other tax revenues.

How to Interpret the Estimates

Each estimate represents the federal tax revenue forgone from a given tax expenditure, everything else being equal. The estimates do not take into account changes in taxpayer behaviour, consequential government actions or feedback on aggregate tax collections through induced changes in economic activity. Accordingly, the elimination of a tax expenditure would not necessarily yield the full amount of revenues shown in Tax Expenditures and Evaluations.

Koplow (1993) *Federal energy subsidies: Energy, environmental , and fiscal impacts – Appendix B*

The financial loss to the U.S. Treasury from a particular tax subsidy depends on three factors: the size of the eligible industry or activity, the magnitude of allowable benefit, and the strictness with which eligibility is interpreted by the Tax Court. The important point to remember is that a 10 per cent tax credit on oil and gas production can yield revenue losses far greater than a 50 per cent solar energy credit, simply because of the relative sizes of the two industries.

The creation of an Alternative Minimum Tax (AMT) in the 1980s reduced the benefits of tax preferences for many in the energy sector. The AMT was developed to ensure that every profit-making venture paid some taxes. Thus, any eligibility for tax benefits below a company's AMT would not be able to be used. Conversely, any relaxation in AMT requirements (such as is provided to independent oil and gas producers in the Energy Policy Act of 1992) would result in higher tax expenditures. The Treasury and Joint Committee on Taxation (JCT) estimates of tax expenditures used here already incorporate the impact of AMT on limiting the size of the subsidies.

The size of the tax expenditure may be measured in two ways: net present value and annual flow. The net present value (NPV) method evaluates the total value of tax losses from a provision going forward. This approach is especially valuable when examining the relative costs of alternative policy options to achieve changes in market behavior. For example, examining the NPV of losses from the oil and gas exceptions to passive loss restrictions would help policy makers determine whether there were more efficient mechanisms to achieve the goal of improved domestic oil security. NPV estimates require assumptions about discount rates, future (potentially long-term) market conditions, the marginal tax rates of taxpayers in each year, and interactions of the tax benefit in question with other tax options. The NPV method has the added advantage that tax expenditure estimates are never negative (i.e., increasing returns to Treasury) as new activity using them declines.

The annual flow method examines the reductions in tax collections from a tax provision in a single year rather than for the entire life of the provision. The annual flow method is used in our analysis for a number of reasons. First, data on the magnitude of these losses were available both from the U.S. Treasury and the Joint Committee on Taxation. Second, the flow-through approach provides the “snap-shot” of total support for energy in a particular year that we were trying to obtain. Both methods are useful, and the NPV method should be done during consideration of any new provisions.

Treasury and JCT tax expenditure estimates, therefore, represent multiple years of investment behavior. Many tax subsidies allow items which are normally deducted from taxes over a 20-30 year period to be deducted in 10 years or less. In this example, for each of the first ten years after an investment is made, the Treasury will collect less tax revenue that it would have without the subsidy. Other provisions, such as investment tax credits, can only offset a certain amount of income. As a result, the credits may be “carried forward” and deducted against income in a future year.

Expanding this example to reflect aggregate investment in the economy means that for any single year of tax expenditure estimates (e.g., 1989), the deductions taken in 1989 from all earlier investments which have not yet been fully depreciated are included. To incorporate this multi-year aspect of investment tax credits and accelerated depreciation provisions, we use the aggregate share of energy investment between 1980 and 1989 to allocate the subsidies to energy types.

OECD (2009) *The PSE manual*

5.2.1. Tax concessions

Tax concessions are a common type of support to agricultural producers that generate budgetary revenue foregone. Concessions may apply to taxes on income, profits and capital gains, real estate and land. Agricultural producers may be granted preferential treatment on VAT (e.g., applied to purchased inputs), on fuel taxes, or on depreciation methods. Farm operators may benefit from preferential treatment on taxes on payroll. The principle of consistent coverage of all policy measures supporting agriculture means that tax concessions should be included in estimated support when they are agriculture-specific or when agricultural producers are their principal beneficiaries. Tax concessions occur when a fiscal advantage is conferred on a group of individuals, or on a particular activity, by reducing tax liability rather than by direct cash subsidy (James and Nobles, 1992). Tax concessions can come in various forms of special treatment that relate to one of the basic features that characterise the structure of a tax. These can be formulated as follows:

- Exemptions: amounts excluded from the tax base.
- Allowances: amounts deducted from the benchmark to arrive at the tax base.
- Credits: amounts deducted from tax liability.
- Rate relief: a reduced rate of tax applied to a class of tax payers or taxable transactions.
- Tax deferral: a relief that takes the form of a delay in paying tax.

Each of these forms imply that some tax revenue is forgone and economic incentives are being provided, in much the same way as would happen with a programme involving budgetary expenditure.

The above definition of a tax concession presumes a counterfactual, i.e., the existence of a group of individuals or activity for which no such fiscal advantage is given. The support associated with preferential taxation can therefore be measured by establishing a counterfactual and quantifying the monetary value of the reduction in tax liability against that counterfactual.

A complete and reliable quantification of tax concessions is therefore a complex empirical task, requiring a considerable amount of resources and information. Very few countries themselves calculate the value of tax revenue foregone. An approach has been adopted to limit the coverage of tax concessions to those that unambiguously confer benefits on agriculture, and the value of which can be estimated at reasonable cost and with reasonable accuracy.

6.2 Accelerated depreciation and other tax deferrals

WTO (1998) Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures

1. Accelerated depreciation

For accelerated depreciation, two approaches to calculating the cost to government (i.e., the revenue foregone) were discussed. The first would be to calculate the subsidy on a year-by-year basis, only for those years in which the government foregoes revenue, on the grounds that it is impossible to predict the beneficiary's true tax liability over the entire depreciation period. Moreover, it was noted that, although accelerated depreciation

programmes generally are constructed in such a manner that tax reductions early on are recaptured at the end of the period, in practice such recapture may never occur. For example, if the beneficiary company is unprofitable at the end of the period, it typically would incur no tax liability. In addition, even if profitable at the end of the period, it may have incurred earlier losses that could have been brought forward to offset current profits, again removing or reducing the tax liability that otherwise would have arisen at that time. Further, if new equipment were purchased toward the end of the depreciation period, accelerated depreciation effectively could be “rolled over” upon the commencement of a new, front-loaded accelerated depreciation period on the new equipment, again meaning that recapture of tax reductions from the first depreciation period would be avoided.

The major disadvantage to this approach was that it would assume the recipient company to be unprofitable indefinitely into the future, or at a minimum to be free of tax liability. The second approach that was discussed is that used by the OECD in its calculations of the cost to government of various kinds of industrial support measures. For accelerated depreciation, the OECD approach is to calculate a lump sum by comparing the tax the company actually will pay to what it “normally” would have paid over the entire depreciation period. This amount is then restated in terms of its present value as of the beginning of the depreciation period. The formula assumes that the company will be profitable, i.e., that it will pay tax, each year. The major disadvantage to this approach was that an absolutely accurate measurement could only be made at the end of the depreciation period.

No consensus was reached with respect to accelerated depreciation.

2. Tax exemptions, deductions, holidays, etc. (Recommendation 12, Part A)

For tax exemptions, deductions, holidays, and any similar measures, it is recommended that the cost to the government be measured as the amount of revenue that the government otherwise would have collected.

3. Tax deferrals (Recommendation 12, Part B)

For tax deferrals, it is recommended that the cost to government be calculated by treating the amount of deferred tax as if it were an interest-free loan for the period of deferral.

**WTO (1999) *Informal Group of Experts on calculation issues related to Annex IV
of the Agreement on Subsidies and Countervailing Measures***

Accelerated depreciation

The Group recalled the limitations, discussed in its first report to the Committee, of the two approaches to accelerated depreciation that it had previously considered. First, treating any tax savings from accelerated depreciation in a given year as a grant could overstate the amount of the cost to government by failing to take account of the possibility that more taxes would be paid in later years. On the other hand the OECD approach, which would calculate the cost to government over the entire depreciation period, might understate that cost as higher taxes might not be paid in later years in practice, if the firm were unprofitable or assets were replaced at the end of the depreciation period. Furthermore, the true amount of the cost to the government could only be known (including by that government itself) after the end of the depreciation period, yet an Article 6.1(a) claim involving accelerated depreciation might be raised at some point during a depreciation period.

The Group considered a third possible approach to accelerated depreciation, which in general terms would treat any tax savings from accelerated depreciation as a tax deferral, and then, in accordance with the Group's recommendation on tax deferrals (Recommendation 12.B), would treat the deferred tax amount as an interest-free loan for the period of accelerated depreciation. In keeping with the Group's recommendation in its first report on timing and sales denominator issues in the case of tax-related subsidies (paragraph 52 and Recommendation 6.B), the approach discussed would assume that the "loan" was provided in the year following that to which the depreciation expense in question was attributed. A number of issues and problems were discussed concerning this approach, and no consensus was reached on any recommendation regarding accelerated depreciation.

Australian Productivity Commission (2002) *Trade and Assistance Review 2001-02 Methodological Annex*²⁵

"Tax expenditures" provide financial benefits to industry through tax exemptions, deductions, rebates, preferential tax rates and tax deferrals. For example, tax exemptions allow income to be excluded from the tax base. Tax deductions, such as the R&D tax concession, allow certain expenditures to be eligible for deductions which normally would not be allowed in the tax system. Preferential tax rates involve the application of a lower tax rate for particular industries. The deferral of tax over a number of years also constitutes a form of assistance. Accelerated depreciation provisions are examples of tax deferrals.

Accelerated depreciation provisions allow assets to be written off over a period shorter than the effective economic life of the assets, the assistance impact of accelerated depreciation is equivalent to an interest-free loan, and can thus differ from the estimated revenue forgone. Accelerated depreciation arrangements have been important measures of assistance to capital intensive industries of manufacturing and mining. Some specific measures are also available to agricultural activities such as vineyards and horticulture. Estimating the assistance impact of accelerated depreciation is difficult due to limited data on the true economic life of capital assets.

Deferrals Estimated on Nominal Cash-Flow Basis

Certain tax measures defer income taxes from the current taxation year to a later one—for example, by accelerating deductions or by deferring income inclusions. Estimating the cost of tax deferrals presents a number of methodological difficulties since, even though the tax is not currently received, it may be collected at some point in the future. It is therefore necessary to derive estimates of the cost to the government of providing such a tax deferral while at the same time ensuring comparability with the other tax expenditure estimates.

Income tax deferrals are estimated on a nominal cash-flow basis—that is, the cost is the forgone tax revenue associated with the net deferral in the year. The estimates thus computed provide a picture of the ongoing cost of maintaining a particular tax provision in a mature tax system.

On a nominal cash-flow basis, deferred income taxes from current-year activities represent a positive tax expenditure while income taxes on previous-year activities for which the deferral has been completed are a negative tax expenditure. Thus, if the level of activity in question were constant from year to year, in a steady state the two amounts would cancel each other out and the tax expenditure would be zero. An increase over time in the level of activity would tend to produce a positive tax expenditure, while a decrease would tend to produce a negative tax expenditure.

²⁵ © Commonwealth of Australia, reproduced by permission

While the cash-flow basis of measurement suggests that, in a steady state, there is no overall cost to the government from deferrals, there is indeed a cost to the government and a benefit to the taxpayer because of the time value of money. Because of the time value of money, a reduction in tax of a given amount today more than offsets a tax increase of the same nominal amount in a future period. This can be demonstrated with a calculation of the value of the implicit interest-free loan that is provided to the taxpayer when taxes are deferred to a later year. For example, if a taxpayer is able to defer \$100 in income tax for one year, and the discount rate is 8 per cent, then the present value of the future obligation is \$92.59 and the taxpayer has received a benefit of \$7.41 in today's dollars. There is an equivalent implicit interest cost to the government.

Unlike the cash-flow basis, under this approach in a steady state a tax deferral would result in a positive tax expenditure. With the exception of tax-assisted retirement savings plans and some illustrations of the impact of accelerated write-offs for capital expenses, this publication does not generally provide present-value estimates of tax expenditures.

Government of Canada (2010) *Regulations respecting special import measures*

Deferral of Income Taxes

33. Where the subsidy in relation to any subsidized goods is contingent on the export of those goods and in the form of a deferral of income taxes, the amount of subsidy shall be determined by distributing, in accordance with generally accepted accounting principles, the amount determined in accordance with section 34 over the quantity of goods exported during the period for which taxes would have been paid had the taxes not been deferred.
34. (1) The amount for the purpose of section 33 is the present value of the interest that would have been payable, by the recipient of the deferral of income taxes, on a commercial loan in an amount equal to the amount of the deferred taxes, for a period equal to the period of the deferral, and with repayment terms similar to those in the payment schedule that applies to the deferred taxes, such present value being determined as of the date the deferral of income taxes came into effect in respect of the recipient of the deferral and by reference to the discount rate determined in accordance with subsection (2), and the interest rate in respect of such a loan being equal to the rate that is
- (a) the prevailing interest rate in the territory of the government that permitted the deferral of income taxes, at the date the taxes would have been payable had they not been deferred, in respect of commercial loans that the recipient of the deferral could have obtained and that have a period the same or substantially the same as the period of the deferral and repayment terms comparable to those in the payment schedule applicable to the deferred taxes;
 - (b) where the interest rate described in paragraph (a) cannot be ascertained or where there is no such interest rate, the prevailing interest rate in the territory of the government that permitted the deferral, at the date the taxes would have been payable had they not been deferred, in respect of commercial loans that the recipient of the deferral could have obtained and that have a period that most closely approximates that of the period of the deferral and repayment terms that most closely approximate those in the payment schedule applicable to the deferred taxes; or
 - (c) where the interest rates described in paragraphs (a) and (b) cannot be ascertained or where there are no such interest rates, the prevailing interest rate in the territory of the government that

permitted the deferral, at the date the taxes would have been payable had they not been deferred, in respect of commercial loans that

- (i) producers of like goods, whose financial creditworthiness is the same or substantially the same as or, in the absence of that condition, approximates that of the recipient of the deferral, could have obtained,
 - (ii) where subparagraph (i) is not applicable, producers of goods of the same general category, whose financial creditworthiness is the same or substantially the same as or, in the absence of that condition, approximates that of the recipient of the deferral, could have obtained, or
 - (iii) where subparagraphs (i) and (ii) are not applicable, producers of goods of the group or range of goods that is next largest to the category referred to in subparagraph (ii), whose financial creditworthiness is the same or substantially the same as or, in the absence of that condition, approximates that of the recipient of the deferral, could have obtained, and that have a period that most closely approximates that of the period of the deferral and repayment terms that most closely approximate those in the payment schedule applicable to the deferred taxes.
- (2) The discount rate for the purposes of subsection (1) is the same as the interest rate determined in accordance with that subsection.

European Commission (1998) *Guidelines for the calculation of the amount of subsidy in countervailing duty investigations*²⁶

and Government of India (2006) *Customs Tariff Rules Amendment*

(iv) Accelerated depreciation

Accelerated depreciation of assets under a government agreed programme should be considered as a tax reduction. The amount of subsidy [EC: is] [India: should be] the difference between the amount of tax that would have been paid during the investigation period under the normal depreciation schedule for the assets concerned, and the amount actually paid under accelerated depreciation. To the extent that the accelerated depreciation results in a tax saving for the company concerned during the investigation period, there is a benefit.

FAO (2004) *Guide for identifying, assessing and reporting on subsidies in the Fisheries Sector*

6.5.9. Investment tax credits and deferred tax programmes

Benefits gained through investment tax credits are Category 3 subsidies that should be assessed by comparing the subsidized scheme with the normal tax regulations applicable to other industries. However, because this type of tax credit often means a redistribution of costs over a period of years by allowing accelerated depreciation of fixed assets, i.e., faster than the real economic life span, or by allowing investments to be made out of non-taxed profits on certain conditions, the actual value of the scheme to the industry in a specific year is usually difficult to calculate. One benefit is the extra capital made available for additional investments and

²⁶ © European Union, <http://eur-lex.europa.eu>. Only European Union legislation printed in the paper edition of the *Official Journal of the European Union* is deemed authentic.

this could be valued at the cost of commercial interest rates. Other benefits include the easing of fluctuations in income over a period of years that would constitute a subsidy equaling, for example, an income loss or unemployment insurance or the financial cost of borrowing working capital.

Deferred tax programmes are similar to the investment tax credits and a similar approach for evaluating their benefits to the industry should be applied. With regard to government costs, it is the foregone revenue and the related administrative costs that should be estimated.

OECD (1995) *Industrial subsidies: A reporting manual*

*5. Tax deferral Programmes (including tax-free investment reserves)**

$$\left[\frac{GGBE}{NCG} \right] = ID \times t - (ID \times t) \left(\frac{1}{1 + rg} \right)^n = IB \times [t - s]$$

- ID* = Income or (other parts of the tax base) benefiting from the deferrals
- t* = tax rate (see above for definition)
- rg* = Discount rate [to be provided from the OECD's Main Economic Indicators and/or Analytical Data Base (ADB)]
- n* = number of years by which the tax liability is deferred

*6. Accelerated Depreciation Programmes***

$$\left[\frac{GGBE}{NCG} \right] = \sum_{y=0}^{n-1} EA \times (sr - ar) \left(\frac{1}{1 + rg} \right)^y \times t$$

- EA* = Expenditure benefiting from accelerated depreciation
- sr* = special rate of depreciation
- ar* = allowed rate of depreciation according to the tax law
- rg* = Discount rate [to be provided from the OECD's Main Economic Indicators and/or Analytical Data Base (ADB)]
- n* = number of years of regular depreciation
- t* = tax rate (see above for definition)
- y* = years

* If a formula other than that proposed for illustration purposes in the questionnaire better reflects the net cost to government of a certain national tax concession, it can be applied. This has to be indicated by reporting the formula applied and the elements which are necessary to perform the calculation.

** This formula corresponds to straight line depreciation. In the case of declining balance the following formula could be applied:

$$\left[\frac{GGBE}{NCG} \right] = EA \times t \times rg \left(\frac{(1 + rg)(sr - ar)}{(sr + rg)(ar + rg)} \right)$$

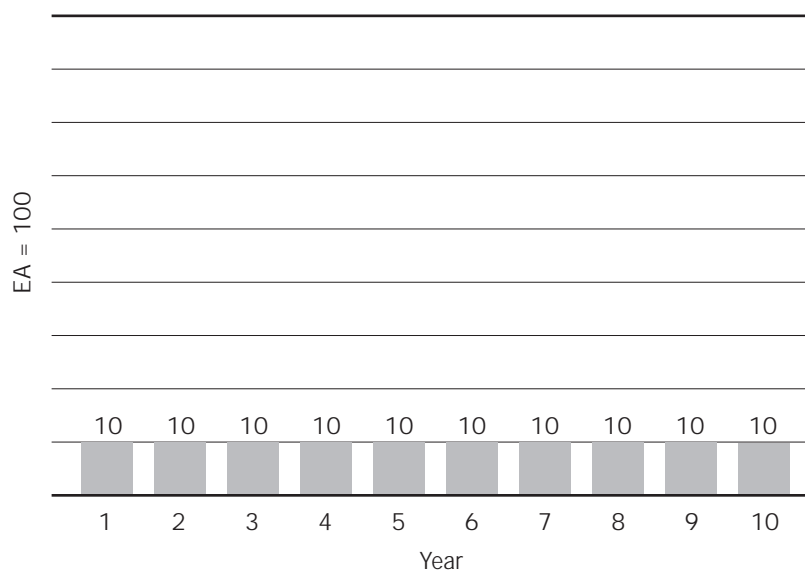
Two examples of calculation of the GGBE and the NCG for two types of accelerated depreciation programmes are provided below:

Regular (normal) depreciation regime:

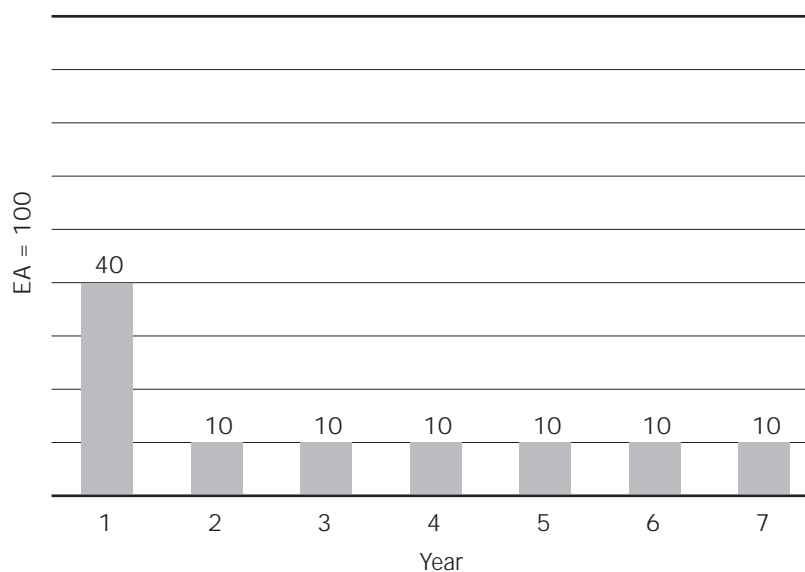
Depreciation period = 10 years

Yearly depreciation rate = 10%

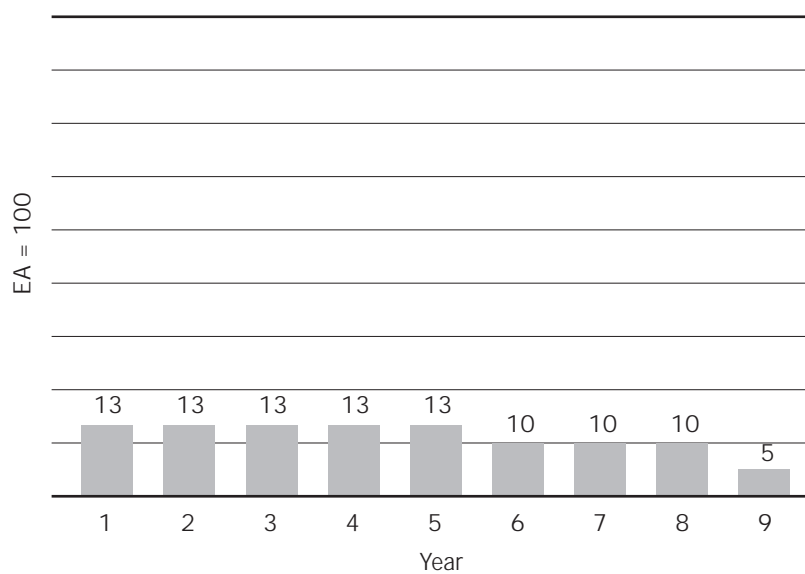
Regular (Normal) Depreciation Scheme



Illustrative Accelerated Depreciated Scheme A



Illustrative Accelerated Depreciation Scheme B



Calculations of the Net Cost to Government of concessions under scheme A and B

(Investment = 100, discount rate = 8%, tax rate = 20%)

$$A) \ NCG = 100 \times (40\% - 10\%) \times 20\% - 100 \times 10\% \left(\frac{1}{1.08}\right)^7 \times 20\% - 100 \times 10\% \left(\frac{1}{1.08}\right)^8 \times 20\% - 100 \times 10\% \left(\frac{1}{1.08}\right)^9 \times 20\% = 4.42$$

$$B) \ NCG = 100 \times (13\% - 10\%) \times 20\% + 100 \times (13\% - 10\%) \left(\frac{1}{1.08}\right)^1 \times 20\% + 100 \times (13\% - 10\%) \left(\frac{1}{1.08}\right)^2 \times 20\% + 100 \times (13\% - 10\%) \left(\frac{1}{1.08}\right)^3 \times 20\% + 100 \times (13\% - 10\%) \left(\frac{1}{1.08}\right)^4 \times 20\% + 100 \times (5\% - 10\%) \left(\frac{1}{1.08}\right)^8 \times 20\% - 100 \times (5\% - 10\%) \left(\frac{1}{1.08}\right)^9 \times 20\% = 1.04$$

**United States Federal Government (2010) Federal Regulations: Customs Duties
 Part 351 – Antidumping and countervailing duties**

§ 351.509 Direct taxes

(a) Benefit —

...

- (2) Deferral of taxes. In the case of a program that provides for a deferral of direct taxes, a benefit exists to the extent that appropriate interest charges are not collected. Normally, a deferral of direct taxes will be treated as a government-provided loan in the amount of the tax deferred, according to the methodology described in §351.505. The Secretary will use a short-term interest rate as the benchmark for tax deferrals of one year or less. The Secretary will use a long-term interest rate as the benchmark for tax deferrals of more than one year.

(b) Time of receipt of benefit —

...

- (2) Deferral of taxes. In the case of a tax deferral of one year or less, the Secretary normally will consider the benefit as having been received on the date on which the deferred tax becomes due. In the case of a multi-year deferral, the Secretary normally will consider the benefit as having been received on the anniversary date(s) of the deferral.

- (c) Allocation of benefit to a particular time period. The Secretary normally will allocate (expense) the benefit of a [...] deferral of a direct tax to the year in which the benefit is considered to have been received under paragraph (b) of this section.

6.3 Credits, refunds and exemptions from income tax

Government of Canada (2010) Regulations respecting special import measures

Income Tax Credits, Refunds and Exemptions

32. Where the subsidy in relation to any subsidized goods is contingent on the export of those goods and in the form of a credit against, a refund of or an exemption from income taxes levied during any period, the amount of subsidy shall be determined by dividing
- (a) the amount of the credit, refund or tax not paid by reason of the exemption, as the case may be, by
 - (b) the quantity of goods exported during the period.

European Commission (1998) Guidelines for the calculation of the amount of subsidy in countervailing duty investigations²⁷

and Government of India (2006) Customs Tariff Rules Amendment

(ii) Tax exemptions

The amount of subsidy [EC: is] [India: should be] the amount of tax that would have been payable by the recipient company at the standard applicable tax rate during the investigation period.

(iii) Tax reductions

The amount of subsidy is the difference between the amount of tax actually paid by the recipient company during the investigation period and the amount that would have been paid at the normal rate of tax.

(The same method should be applied to all other exemptions and reduction of obligation, e.g. import duties, social security contributions, redundancy payments)

OECD (1995) Industrial subsidies: A reporting manual

NOTE: For the purpose of this reporting format only business related taxes should be included. In this sense, the following should be considered as business related taxes:

- taxes on corporate income, corporate profits and corporate capital gains
- corporate property taxes

²⁷ © European Union, <http://eur-lex.europa.eu>. Only European Union legislation printed in the paper edition of the Official Journal of the European Union is deemed authentic.

In the case of tax concessions, there is an accounting identity between Gross Government Budget Expenditure (GGBE) and Net Cost of Government (NCG). Their measurement for the six main types of tax concessions is described below. As will be seen from the formulas, concessions are measured using the “revenue foregone” technique (as different from “cash” and “first year” basis).

1. *Tax Exemptions Programme**

$$\left[\begin{array}{l} GGBE \\ NCG \end{array} \right] = IE \times t$$

IE = Income (or other parts of the tax base) excluded from the tax base

t = tax rate (see note)

Note: The most appropriate rate on theoretical grounds is the “average marginal tax rate.” Every time this rate is available, it is preferable to use it in the calculations. However, since the “average tax rate” is easier to obtain, and the “average tax rate” and the “average marginal tax rate” are very close in most instances, the “average tax rate” will be an acceptable substitute for the “average marginal tax rate” every time the latter is not available.

2. *Special Allowance Programmes**

$$\left[\begin{array}{l} GGBE \\ NCG \end{array} \right] = AD \times t$$

AD = Additional deductible amount exceeding 100% of normally deductible expenditure

t = tax rate (see above for definition)

3. *Special Tax Relief Programme**

$$\left[\begin{array}{l} GGBE \\ NCG \end{array} \right] = IB \times [t - s]$$

IB = Income or (other parts of the tax base) benefiting from the relief

t = tax rate (see above for definition)

s = special tax rate applied in the programme

If a formula other than that proposed for illustration purposes in the questionnaire better reflects the net cost to government of a certain national tax concession, it can be applied. This has to be indicated by reporting the formula applied and the elements which are necessary to perform the calculation.

4. *Tax Credit Programmes**

$$\left. \begin{array}{l} GGBE \\ NCG \end{array} \right] = DT$$

DT = Deductible tax liability

**United States Federal Government (2010) *Federal Regulations: Customs Duties*
Part 351 – Antidumping and countervailing duties**

§ 351.509 Direct taxes

(a) Benefit —

- (1) Exemption or remission of taxes. In the case of a program that provides for a full or partial exemption or remission of a direct tax (e.g., an income tax), or a reduction in the base used to calculate a direct tax, a benefit exists to the extent that the tax paid by a firm as a result of the program is less than the tax the firm would have paid in the absence of the program.

...

(b) Time of receipt of benefit —

- (1) Exemption or remission of taxes. In the case of a full or partial exemption or remission of a direct tax, the Secretary normally will consider the benefit as having been received on the date on which the recipient firm would otherwise have had to pay the taxes associated with the exemption or remission. Normally, this date will be the date on which the firm filed its tax return.

...

- (c) Allocation of benefit to a particular time period. The Secretary normally will allocate (expense) the benefit of a full or partial exemption [or] remission [...] of a direct tax to the year in which the benefit is considered to have been received under paragraph (b) of this section.

6.4 Exemptions and relief from indirect taxes

Government of Canada (2010) *Regulations respecting special import measures*

Excessive Relief of Duties and Taxes on Exported Goods

35. Where the subsidy in relation to any subsidized goods is contingent on the export of the goods and is in the form of an exemption from or remission, refund or drawback equal to an amount greater than the duties or taxes levied on the production, purchase, distribution, transportation, sale, export or import of the goods, the amount of subsidy shall be determined by deducting the amount of duties or taxes levied on or in respect of the exported goods, or the amount of duties or taxes that would have been levied on or in respect of the goods if they had not been exported, from the amount of the exemption, remission, refund or drawback that was granted in connection with the goods, and dividing the result by the quantity of goods, in relation to which the exemption, remission, refund or

drawback was granted, that were exported during the period for which the duties or taxes were exempted, remitted, refunded or drawn back.

Excessive Relief of Duties and Taxes on Inputs

- 35.01 (1) Where the subsidy in relation to any subsidized goods is contingent on the export of the goods and is in the form of an exemption from or remission, refund or drawback equal to an amount greater than the duties or taxes levied on goods consumed in the production of the exported goods, the amount of subsidy shall be determined by deducting the amount of duties or taxes levied on or in respect of the consumed goods from the amount of the exemption, remission, refund or drawback that was granted in connection with the consumed goods, and dividing the result by the quantity of goods, in relation to which the exemption, remission, refund or drawback was granted, that were exported during the period for which the duties or taxes were exempted, remitted, refunded or drawn back.
- (2) For the purpose of subsection (1), the only goods considered to be consumed in the production of the exported goods are
- (a) energy, fuel, oil and catalysts that are used or consumed in the production of the exported goods; and
 - (b) goods incorporated into the exported goods.

FAO (2004) *Guide for identifying, assessing and reporting on subsidies in the Fisheries Sector*

6.5.8. Fuel-tax exemptions

One quite common fisheries subsidy is to provide fuel at a lower tax rate to fishing vessels. If the fisheries industry has access to fuel at a lower cost than other industries, the scheme could constitute a Category 2 subsidy.

The value of tax exemptions is calculated as the difference between the “normal” tax rate, i.e., the rate applied to other sectors of the economy, and the lower rate granted the fishing industry. For the government, the cost would be represented by the foregone tax revenues and administrative costs related to the scheme.

Other reductions in public fees and taxes implying that inputs, supplies and services are provided below market price should be valued at the difference between the price actually paid by the industry and the market price or price generally charged to other sectors.

BOX 12

Fuel-tax rebate - An example

Fishing vessels in Seidisbus that are registered with the Fisheries Department benefit from a fuel-tax rebate. The amount of rebate depends on the type of fuel used; gasoline, diesel and oil mixtures, and there are maximum quotas per annum per fishing vessel based on the horsepower of its engines. The rebate is refunded by the Department of Fisheries when the eligible fisher presents a claim.

The cost to the government is calculated as the foregone revenue plus administrative costs, i.e.:

US\$ 0.07 (average rebate per litre of fuel) multiplied by 10 000 000 litres (amount of fuel for which claims have been made) = 700 000.

Administrative cost: 10 000.

TOTAL: US\$ 710 000

The value to the industry is assumed to be the same as the actual rebate, i.e., US\$ 700 000.

Even though tax rebates are generally classified as Category 2 subsidies, we could consider classifying this particular programme as a Category 1 subsidy as it in practice involves a direct financial transfer (through the procedure of reimbursements according to claims).

**United States Federal Government (2010) Federal Regulations: Customs Duties
Part 351 – Antidumping and countervailing duties**

§ 351.510 Indirect taxes and import charges (other than export programs)

(a) Benefit

- (1) Exemption or remission of taxes. In the case of a program, other than an export program, that provides for the full or partial exemption or remission of an indirect tax or an import charge, a benefit exists to the extent that the taxes or import charges paid by a firm as a result of the program are less than the taxes the firm would have paid in the absence of the program.
- (2) Deferral of taxes. In the case of a program, other than an export program, that provides for a deferral of indirect taxes or import charges, a benefit exists to the extent that appropriate interest charges are not collected. Normally, a deferral of indirect taxes or import charges will be treated as a government-provided loan in the amount of the taxes deferred, according to the methodology described in §351.505. The Secretary will use a short-term interest rate as the benchmark for tax deferrals of one year or less. The Secretary will use a long-term interest rate as the benchmark for tax deferrals of more than one year.

(b) Time of receipt of benefit —

- (1) Exemption or remission of taxes. In the case of a full or partial exemption or remission of an indirect tax or import charge, the Secretary normally will consider the benefit as having been received at the time the recipient firm otherwise would be required to pay the indirect tax or import charge.
 - (2) Deferral of taxes. In the case of the deferral of an indirect tax or import charge of one year or less, the Secretary normally will consider the benefit as having been received on the date on which the deferred tax becomes due. In the case of a multi-year deferral, the Secretary normally will consider the benefit as having been received on the anniversary date(s) of the deferral.
- (c) Allocation of benefit to a particular time period. The Secretary normally will allocate (expense) the benefit of a full or partial exemption, remission, or deferral described in paragraph (a) of this section to the year in which the benefit is considered to have been received under paragraph (b) of this section.

§ 351.517 Exemption or remission upon export of indirect taxes

- (a) Benefit. In the case of the exemption or remission upon export of indirect taxes, a benefit exists to the extent that the Secretary determines that the amount remitted or exempted exceeds the amount levied with respect to the production and distribution of like products when sold for domestic consumption.
- (b) Time of receipt of benefit. In the case of the exemption or remission upon export of an indirect tax, the Secretary normally will consider the benefit as having been received as of the date of exportation.
- (c) Allocation of benefit to a particular time period. Normally, the Secretary will allocate (expense) the benefit from the exemption or remission upon export of indirect taxes to the year in which the benefit is considered to have been received under paragraph (b) of this section.

§ 351.518 Exemption, remission, or deferral upon export of prior-stage cumulative indirect taxes

(a) Benefit —

- (1) Exemption of prior-stage cumulative indirect taxes. In the case of a program that provides for the exemption of prior-stage cumulative indirect taxes on inputs used in the production of an exported product, a benefit exists to the extent that the exemption extends to inputs that are not consumed in the production of the exported product, making normal allowance for waste, or if the exemption covers taxes other than indirect taxes that are imposed on the input. If the Secretary determines that the exemption of prior-stage cumulative indirect taxes confers a benefit, the Secretary normally will consider the amount of the benefit to be the prior-stage cumulative indirect taxes that otherwise would have been paid on the inputs not consumed in the production of the exported product, making normal allowance for waste, and the amount of charges other than import charges covered by the exemption.
- (2) Remission of prior-stage cumulative indirect taxes. In the case of a program that provides for the remission of prior-stage cumulative indirect taxes on inputs used in the production of an exported product, a benefit exists to the extent that the amount remitted exceeds the amount of prior-stage cumulative indirect taxes paid on inputs that are consumed in the production of the exported

product, making normal allowance for waste. If the Secretary determines that the remission of prior-stage cumulative indirect taxes confers a benefit, the Secretary normally will consider the amount of the benefit to be the difference between the amount remitted and the amount of the prior-stage cumulative indirect taxes on inputs that are consumed in the production of the export product, making normal allowance for waste.

- (3) Deferral of prior-stage cumulative indirect taxes. In the case of a program that provides for a deferral of prior-stage cumulative indirect taxes on an exported product, a benefit exists to the extent that the deferral extends to inputs that are not consumed in the production of the exported product, making normal allowance for waste, and the government does not charge appropriate interest on the taxes deferred. If the Secretary determines that a benefit exists, the Secretary will normally treat the deferral as a government-provided loan in the amount of the tax deferred, according to the methodology described in §351.505. The Secretary will use a short-term interest rate as the benchmark for tax deferrals of one year or less. The Secretary will use a long-term interest rate as the benchmark for tax deferrals of more than one year.
 - (4) Exception. Notwithstanding the provisions in paragraphs (a)(1), (a)(2), and (a)(3) of this action, the Secretary will consider the entire amount of the exemption, remission or deferral to confer a benefit, unless the Secretary determines that:
 - (i) The government in question has in place and applies a system or procedure to confirm which inputs are consumed in the production of the exported products and in what amounts, and to confirm which indirect taxes are imposed on these inputs, and the system or procedure is reasonable, effective for the purposes intended, and is based on generally accepted commercial practices in the country of export; or
 - (ii) If the government in question does not have a system or procedure in place, if the system or procedure is not reasonable, or if the system or procedure is instituted and considered reasonable, but is found not to be applied or not to be applied effectively, the government in question has carried out an examination of actual inputs involved to confirm which inputs are consumed in the production of the exported product, in what amounts, and which indirect taxes are imposed on the inputs.
- (b) Time of receipt of benefit. In the case of the exemption, remission, or deferral of prior-stage cumulative indirect taxes, the Secretary normally will consider the benefit as having been received:
- (1) In the case of an exemption, as of the date of exportation;
 - (2) In the case of a remission, as of the date of exportation;
 - (3) In the case of a deferral of one year or less, on the date the deferred tax became due; and
 - (4) In the case of a multi-year deferral, on the anniversary date(s) of the deferral.
- (c) Allocation of benefit to a particular time period. The Secretary normally will allocate (expense) the benefit of the exemption, remission or deferral of prior-stage cumulative indirect taxes to the year in which the benefit is considered to have been received under paragraph (b) of this section.

§ 351.519 Remission or drawback of import charges upon export

(a) Benefit —

- (1) In general. The term “remission or drawback” includes full or partial exemptions and deferrals of import charges.
 - (i) Remission or drawback of import charges. In the case of the remission or drawback of import charges upon export, a benefit exists to the extent that the Secretary determines that the amount of the remission or drawback exceeds the amount of import charges on imported inputs that are consumed in the production of the exported product, making normal allowances for waste.
 - (ii) Exemption of import charges. In the case of an exemption of import charges upon export, a benefit exists to the extent that the exemption extends to inputs that are not consumed in the production of the exported product, making normal allowances for waste, or if the exemption covers charges other than import charges that are imposed on the input.
 - (iii) Deferral of import charges. In the case of a deferral, a benefit exists to the extent that the deferral extends to inputs that are not consumed in the production of the exported product, making normal allowance for waste, and the government does not charge appropriate interest on the import charges deferred.
- (2) Substitution drawback. “Substitution drawback” involves a situation in which a firm uses a quantity of home market inputs equal to, and having the same quality and characteristics as, the imported inputs as a substitute for them. Substitution drawback does not necessarily result in the conferral of a benefit. However, a benefit exists if the Secretary determines that:
 - (i) The import and the corresponding export operations both did not occur within a reasonable time period, not to exceed two years; or
 - (ii) The amount drawn back exceeds the amount of the import charges levied initially on the imported inputs for which drawback is claimed.
- (3) Amount of the benefit —
 - (i) Remission or drawback of import charges. If the Secretary determines that the remission or drawback, including substitution drawback, of import charges confers a benefit under paragraph (a)(1) or (a)(2) of this section, the Secretary normally will consider the amount of the benefit to be the difference between the amount of import charges remitted or drawn back and the amount paid on imported inputs consumed in production for which remission or drawback was claimed.
 - (ii) Exemption of import charges. If the Secretary determines that the exemption of import charges upon export confers a benefit, the Secretary normally will consider the amount of the benefit to be the import charges that otherwise would have been paid on the inputs not consumed in the production of the exported product, making normal allowance for waste, and the amount of charges other than import charges covered by the exemption.

- (iii) Deferral of import charges. If the Secretary determines that the deferral of import charges upon export confers a benefit, the Secretary will normally treat a deferral as a government-provided loan in the amount of the import charges deferred on the inputs not consumed in the production of the exported product, making normal allowance for waste, according to the methodology described in §351.505. The Secretary will use a short-term interest rate as the benchmark for deferrals of one year or less. The Secretary will use a long-term interest rate as the benchmark for deferrals of more than one year.
- (4) Exception. Notwithstanding paragraph (a)(3) of this section, the Secretary will consider the entire amount of an exemption, deferral, remission or drawback to confer a benefit, unless the Secretary determines that:
 - (i) The government in question has in place and applies a system or procedure to confirm which inputs are consumed in the production of the exported products and in what amounts, and the system or procedure is reasonable, effective for the purposes intended, and is based on generally accepted commercial practices in the country of export; or
 - (ii) If the government in question does not have a system or procedure in place, if the system or procedure is not reasonable, or if the system or procedure is instituted and considered reasonable, but is found not to be applied or not to be applied effectively, the government in question has carried out an examination of actual inputs involved to confirm which inputs are consumed in the production of the exported product, and in what amounts.
- (b) Time of receipt of benefit. In the case of the exemption, deferral, remission or drawback, including substitution drawback, of import charges, the Secretary normally will consider the benefit as having been received:
 - (1) In the case of remission or drawback, as of the date of exportation;
 - (2) In the case of an exemption, as of the date of the exportation;
 - (3) In the case of a deferral of one year or less, on the date the import charges became due; and
 - (4) In the case of a multi-year deferral, on the anniversary date(s) of the deferral.
- (c) Allocation of benefit to a particular time period. The Secretary normally will allocate (expense) the benefit from the exemption, deferral, remission or drawback of import charges to the year in which the benefit is considered to have been received under paragraph (b) of this section.

CHAPTER 7. GOVERNMENT PROVISION OR PURCHASE

WTO (1994) Agreement on Subsidies and Countervailing Measures

1.1 For the purpose of this Agreement, a subsidy shall be deemed to exist if:

- (a)(1) there is a financial contribution by a government or any public body within the territory of a Member (referred to in this Agreement as “government”), i.e., where:
 - (iii) a government provides goods or services other than general infrastructure, or purchases goods;

7.1. Government provision of goods and services

WTO (1994) Agreement on Subsidies and Countervailing Measures

Article 14 Calculation of the Amount of a Subsidy in Terms of the Benefit to the Recipient

- (d) the provision of goods or services...by a government shall not be considered as conferring a benefit unless the provision is made for less than adequate remuneration...The adequacy of remuneration shall be determined in relation to prevailing market conditions for the good or service in question in the country of provision...(including price, quality, availability, marketability, transportation and other conditions of purchase or sale).

WTO (1998) Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures

I. Government Provision of Goods and/or Services (Recommendation 15)

In general, it is recommended that the cost to the government of providing a good and/or service be calculated as the expenses/costs incurred by the government in providing the good or service, including a reasonable return, minus the price received for the good and/or service. If the cost to the government cannot be calculated according to this approach, it could be calculated using other approaches under the adequate remuneration standard of Article 14(d). This amount could be treated as a grant in the calculation of ad valorem subsidization.

A number of special considerations were discussed regarding how to measure the cost to the government of providing goods and services in specific contexts. For example, in certain circumstances such as the provision of widely-used inputs like electricity or natural gas, a price differential between different customers might not be abnormal. Large customers would tend to be charged a lower price by an electric utility than smaller users, based on the cost differential to supply them. Thus, it would be important to examine the standard price list or pricing schedule applicable to the different categories of customer. If a particular customer were charged a disproportionately low price in relation to the “normal price”, there might be a cost to the government. The “normal price” would be the price that would be expected based on the price schedule, or based on the price to comparable customers, which covered all of the government’s costs of providing the good or service to the customer (including a reasonable return).

In addition, with regard to the provision of widely-used inputs (e.g., electricity, water or natural gas), it is recommended that a government be deemed to have incurred a cost in providing a good or service only if the

price actually charged to a particular customer is less than the normal” price for that type or category of customer. The “normal” price would be the price that would be expected based on the price schedule, or based on the price to comparable customers, and which covered the cost (including a reasonable return) of providing the good or service to the customer.

It is recognized that a price differential for different customers might not be abnormal (as, for example, in the case of an electric utility). Only if, based on the standard price list or pricing schedule, the price charged to a particular customer were disproportionately low in relation to the price that would be expected based on the price schedule (or in relation to the price charged to other, comparable, customers), might a cost to the government possibly arise.

In the event that a cost to the government is found to exist, this cost should be calculated based on the difference between the normal” price for the good or service and the price actually charged.

Australian Department of Environment, Sport and Territories (1996) *Subsidies to the use of natural resources*

Failure to achieve normal rates of return represents a major source of financial subsidies to several resource activities in Australia, particularly in the water sector. A normal rate of return may be defined as the opportunity cost of capital use in the community. It is the minimum rate of return on investment required to adequately cover opportunities foregone from alternative investments.

For public sector activities a normal rate of return should reflect the cost to the community of using public assets. This cost may be assessed in several ways.

It is arguable that the rate of return should reflect the current long term bond rate, since this is the marginal cost of public funds. A problem with this approach is that long term bond rates have been subject to considerable fluctuation. From a normal level of around 2 per cent a year in the early part of this century, the ten year bond rate averaged around 5 per cent in the 1960s; rose from 7 to 10 per cent during the 1970s and reached 13.3 per cent in 1989–90, from which height it fell to 7.3 per cent in 1993–94, recently recovering to 8.8 per cent.

Given that the assets of government businesses are likely to rise in value with inflation, it is arguable that the true cost of capital to such businesses is the long term bond rate adjusted for inflation. Real long term bond rates fluctuate both with the nominal rate and the inflation rate, but over the first half of the twentieth century and into the 1960s they averaged around 1 per cent. They were negative for a number of years during the 1970s, but rebounded to unprecedented heights during the 1980s, and for the period 1989–94 averaged 6.6 per cent.

Some would further argue that productive activities are risky, and should bear a rate of return greater than the long term real bond rate. Reflecting this view, a rate of 8 per cent has been adopted as a benchmark in the present study.

An alternative would be to set the rate of return with respect to private sector activities. The question then is which private sector rate of return should be considered. Though rates of return in corporate business average above the long term bond rate, the aggregate returns of the Australian corporate sector had to be adjusted downwards by 20 billion dollars due to business failures in the early part of this decade. Again, returns in small business to which there is ease of entry notoriously fail to yield any surplus over financing costs. However, the choice of 8 per cent is reasonably defensible from this point of view, at current rates of return.

A different perspective is that derived from calculations of the rate at which non-renewable resources should be depleted. At current rates of interest it makes very little sense to defer exploitation of non-renewable resources, since postponed benefits count for very little the further they are postponed and the higher the discount rate. Those who wish to emphasise provision for the future accordingly wish to use much lower discount rates. If low rates should be used in calculations of the rate of exploitation of non-renewable resources, it is arguable that they should also be extended to other environmental assessments.

Finally, as already pointed out, real interest rates are currently at very high levels, by historical standards. It has been argued that these high rates reflect the stress at present being placed on monetary policy as an instrument of economic control, and are likely to be temporary in nature. If this is the case, it is arguable that public sector returns should continue to be judged by historically normal long term interest rates plus a risk margin. This yields a rate of 3 or 4 per cent.

Points 5 and 6 above provide caveats to the choice of 8 per cent as the cost of capital for purposes of calculating subsidisation. In general, where capital returns are in question in this report, the achieved rate will be reported. Readers who prefer a rate lower than 8 per cent may use this information to adjust the reported financial subsidies downwards if they choose.

In both the financial and environmental subsidy areas there are important intergenerational considerations. Removal of resource use subsidies would contribute to the lowering of government debt and/or enable higher expenditure on priority areas including those with long term benefits. These changes would tend to increase benefits to future generations, as would moves towards the sustainability of economic activities. In dealing with intergenerational and other future value issues it is necessary to consider what discount rate should be applied to these values.

Discount rates link the future value of money to the present by specifying at what rate the value of a future dollar should be reduced. Or, put another way, the discount rate is the amount by which a unit of monetary value available in a future year is discounted or reduced for comparison with present economic values.

As discussed in section 1.3.2 above, for some public policy purposes, such as a choice among alternative development investment projects from a limited budget, high real discount rates may be appropriate. However, such rates quickly turn future values into negligible amounts. Discounting at 10 per cent, \$100 received 200 years in the future is worth only $\$5.3 \times 10^{-7}$ today (i.e., a small fraction of a cent); about \$0.005 discounting at 5 per cent; and about \$2 if the discount rate is 2 per cent. Although some greater valuation of the present over the future is appropriate, the extreme tradeoffs suggested by the 5 per cent and 10 per cent rates seem implausible. Some analysts such as Mishan²⁹ suggest that, for intergenerational analysis, there should be no discounting at all because the unborn generation might value extra income just as highly as the present generation. Similarly, Sen²⁸ has argued that environmental degradation may “oppress” the future generation even if it is wealthier.

²⁸ Mishan, E.J. (1975), *Cost Benefit Analysis: An Informal Introduction*, Allen and Unwin, London.

²⁹ Sen, A.K. (1982), “Approaches to the choice of discount rates for social benefit cost analysis”, in Lind. R. (ed.), *Discounting for Finite Risk in Energy Policy*, Resources for the Future, Washington, D.C.

Government of Canada (2010) Regulations respecting special import measures

36. Where the subsidy in relation to any subsidized goods is in the form of the provision, by a government, of goods or services, the amount of subsidy shall be determined by distributing, in accordance with generally accepted accounting principles, over the estimated total quantity of subsidized goods to which the subsidy is attributable, the difference between

- (a) the fair market value of the goods or services in the territory of the government providing the subsidy, and
- (b) the price at which the goods or services were provided by that government.

36.001 Where there is a significant difference between the amount of subsidy in relation to goods as otherwise determined under this Part and the future value, on the date of sale of the goods, of the amount of subsidy so determined, the amount of subsidy shall be the future value, on the date of sale, of the amount of subsidy as otherwise determined under this Part.

European Commission (1998) Guidelines for the calculation of the amount of subsidy in countervailing duty investigations³⁰

and Government of India (2006) Customs Tariff Rules Amendment

(d) Provision of goods and services by the government

Principle

- (i) The amount of subsidy as regards the provision of goods or services by the government [*EC: is*] [*India: should be*] the difference between the price paid by firms for the goods or service, and adequate remuneration for the product or service in relation to prevailing market conditions, if the price paid to the government is less than this amount.

Adequate remuneration has normally to be determined in the light of prevailing market conditions on the domestic market of the exporting country, and the calculation of the subsidy amount must reflect only that part of the purchases of goods or services which are used directly in the production or sale of the like product during the investigation period.

Comparison with private suppliers

- (ii) As a first step, it must be established whether the same goods or services involved are provided both by the government and by private operators. If this is the case, the price charged by the government body would normally constitute a benefit to the extent that it is below the lowest price available from one of the private operators to the company involved for a comparable purchase. The amount of subsidy would be the difference between these two prices.

³⁰ © European Union, <http://eur-lex.europa.eu>. Only European Union legislation printed in the paper edition of the *Official Journal of the European Union* is deemed authentic.

If the company involved has not made comparable purchases from private operators, details should be obtained of the price paid by comparable companies in the same sector of the economy or, if such data is not available, in the economy as a whole. The amount of subsidy would be calculated as above.

Government monopoly suppliers

(iii) If, however, the government is the monopoly supplier of the goods or services involved, they are considered to be provided for less than adequate remuneration if certain enterprises or sectors benefit from preferential prices. The amount of subsidy will be the difference between the preferential price and the normal price.

If the goods and services in question are widely used in the economy, a subsidy will only be specific [*India*: or conferred on a limited number of persons] if there is evidence of preferential pricing to a particular firm or sector.

It may be that per unit prices charged vary according to neutral and objective criteria, for example large consumers pay less per unit than small ones, as sometimes happens in the provision of gas and electricity. In such situations, the fact that certain enterprises benefit from more favourable prices than others would not mean that the provision in this case was necessarily made for less than adequate remuneration, provided that the pricing structure in question was generally applied throughout the whole economy, without any preferential prices being given to specific sectors or firms. The amount of subsidy [*EC*: is] [*India*: should] in principle [*India*: be] the difference between the preferential price and the normal price charged to an equivalent company, according to the normal structure.

(iv) However, if the normal price is insufficient to cover the supplier's average total costs plus a reasonable profit margin (based on sector averages), the amount of subsidy [*EC*: is] [*India*: should be] the difference between the preferential price and the price which would be required to cover the above costs and profit.

(v) If the government is the monopoly supplier of a good or service with a specific use, e.g., television tubes, the question of preferential pricing does not arise, and the amount of subsidy [*EC*: will] [*India*: should] be the difference between the price paid by the firm involved and the price required to cover the supplier's costs and profit margin.

Environmental Working Group (2004) *California water subsidies*

What is a water subsidy?

A water subsidy is simply the difference between what a contractor is paying for water and how much this water is actually worth. But there are as many ways to calculate the value of a water subsidy as there are ways to figure the true cost of CVP water. We used three different definitions of "true cost:"

The Bureau of Reclamation's "full cost" rate: Under the Reclamation Reform Act of 1982, farmers who receive CVP water for more than 960 acres of cropland are required to pay a higher rate than was originally stipulated in their contract. This rate is supposed to cover the "full costs" of water delivery, including CVP operation and maintenance charges, payments toward CVP construction costs, as well as partial interest on these capital costs. These rates vary significantly between each district, based on the distance the water must be transported among other considerations, and are calculated annually by the Bureau. In 2002 the average

rate for all CVP districts overall was \$38.93. Despite its name, the Bureau's "full cost" rate is widely recognized as being too low to be considered a good estimate for the true cost of CVP irrigation water: Capital interest is calculated only from 1982 onward and an increasing amount of the capital costs themselves have been allocated to CVP power users rather than to irrigators.

Environmental Water Account (EWA) rate: The EWA has been described as a virtual water district where the customers are fish. Operated by the state since 2000 as part of a larger program to restore ecosystem health in the Bay and Delta, the EWA buys water from willing sellers within the CVP and SWP at market rates to use for environmental purposes. The water, for instance, may be used to improve water quality in a particular section of river or help restore threatened species such as salmon and Delta smelt. As the EWA is a publicly funded entity, the government is essentially selling CVP water to farmers at very low prices and then buying it back later at much higher rates to replace water that was in the river in the first place. For our subsidy calculations, EWG defined the "EWA rate" as the average price for EWA-purchased water during fiscal year 2002–2003, or \$129.48 per acre-foot.

Replacement water rate: The Bureau of Reclamation and the California Department of Water Resources are currently considering adding a massive new dam (or expanding an existing one) on the upper San Joaquin River to increase water supply. After completing a feasibility assessment for 17 possible sites, the agencies have now developed initial cost estimates for the six sites judged to have the greatest potential. These are highly conservative cost estimates because they exclude the costs for road construction, relocations of existing facilities, environmental mitigation, land acquisition, reservoir cleaning, and interest during and after construction. These estimates are useful, however, because they put a lower bound on what a new supply of irrigation water might cost. For our calculations, EWG defined the "replacement water rate" as the average estimated water cost for the three least expensive San Joaquin basin "water storage" options, plus the average 2002–2003 operation and maintenance rate for the CVP, totaling \$170.42 per acre-foot.

For our district level water subsidies analyses, we compared what each district actually paid to the Bureau for the water it used during the year 2002 with what the district would have paid if the water was charged at the Bureau's "full cost" rate, EWA rate, or "replacement water" rate. For those 100 or so farmers who contract with the Bureau of Reclamation directly, we followed the same process, as their actual water use figures are recorded in annual reports from the Bureau. For those farms where we had to estimate water use, we took into consideration whether the farm harvested over 960 acres of crops and may be paying for some of their water at the Bureau's "full cost" rates already. We present minimum and maximum estimates of the subsidy, and are confident that the actual value of the subsidy is included in that range.

FAO (2004) *Guide for identifying, assessing and reporting on subsidies in the Fisheries Sector*

6.5.11. Special insurance schemes for vessels and equipment

Insurance schemes run or underwritten by governments are often classified as Category 2 subsidies when they offer the fisheries industry terms and conditions that are more favourable than those on the commercial insurance market. The industry value of these schemes could be estimated as the difference between the subsidized premium cost to the industry and the corresponding market price for an equivalent insurance. If there is no market price available for the particular type of insurance, an approximation could be made taking the perceived risk into account. The government cost would be calculated as the amount of claims paid out and the administrative cost involved in the managing the scheme less insurance premiums paid by the

industry. Also the value of the subsidy to the industry could be based on these actual government costs, in particular if the amount of claims is significant and there are no applicable market prices.

6.5.14. Fishing port facilities and other infrastructure

Governments generally provide infrastructure such as roads, dams, bridges and public buildings and this is commonly considered to be the responsibility of the government: it is acceptable to finance basic infrastructure, beneficial to citizens in general, by tax payments through the public budget (at least partly; there are also many examples of users contributing directly to the costs of some of the more general facilities through, for example, road taxes).

However, infrastructure that is specific to a group of citizens or a particular sector of the economy and for which the costs—investment costs and operating costs—are not recovered from these groups of users could be considered a subsidy. The line between general and specific infrastructure is sometimes difficult to draw and we may have to make a more detailed analysis of the actual users of a particular facility to decide whether it should be considered a fisheries subsidy. Commonly, one of the clearest examples of a subsidy of this type is the provision of fishing port facilities. Harbour dues are often collected but unless these cover the entire cost of building, maintaining and running the port, the provision of the facility could be considered a Category 2 subsidy. Other examples of fisheries specific infrastructure are fish markets that were mentioned in section 6.5.7 above.

BOX 15

Assessing infrastructure subsidies - An example

There are ten different landing sites and small ports along the coast in Seidisbus, operated by the local city municipalities. The facilities at the landing sites vary but generally include gas pumps, jetties, toilets, storage lockers, fish wash stands and engine repair rooms. At each site, there is a caretaker—employee of the municipality—who is responsible for the management of the site. The sites are mainly used free of charge by some 800 artisanal fishing boats.

In a fisheries subsidies study, the provision of these landing site facilities free of charge was considered a subsidy to the fisheries industry as this type of services does not exist in other economic sectors in Seidisbus. However, the assessment of the subsidy caused problems because the capital cost of the investments were not accounted for on an annual basis in the accounts of the municipalities; as the government practices a cash basis accounting principle, the capital expenditure is accounted for in the year of payment and no depreciation costs are allocated over time. Moreover, some of the facilities were very old and it seemed difficult to establish when they had been constructed. Hence, to estimate the annual depreciation cost to be included in the calculation of the government cost of the subsidy various assumptions and approximations had to be used. Some of the investment expenditures could be found in the accounts of previous years. By consulting other departments of the government involved in public infrastructure projects, estimates of the values of other items were obtained as well as their likely economic life spans.

Accordingly, the total cost to the government of the ten landing sites were calculated as follows:

- Operational costs: 100 000 (ten caretakers) + 50 000 (maintenance and repairs) + 20 000 (miscellaneous) = 170 000.
- Depreciation on infrastructure type 1: 200 000 (investment) divided by 10 years = 20 000.
- Depreciation on infrastructure type 2: 300 000 (investment) divided by 20 years = 15 000.
- Overhead cost city municipalities: 5 000.
- **TOTAL: US\$ 215 000**

With regard to the value of the subsidy to the industry, the annual cost per boat, i.e., approximately US\$ 270 according to the above calculation, was compared with the prices charged by two private boat clubs offering mooring and other facilities to leisure boats: US\$ 500 per boat per year. Taking the differences in facilities and services into account, it was concluded that a reasonable market price for the landing site facilities offered by the City Municipalities would be around US\$ 350. Hence, the total value to the industry was calculated as:

- 350 multiplied by 800 (number of boats) = **TOTAL: US\$ 280 000**

The annual cost to the government of this type of subsidy should be estimated as the depreciation cost per year in addition to maintenance and other operational costs for running the facility. Regarding the value to the industry, it should preferably be estimated as the prevailing market price for using similar types of facilities as the ones being provided. In many cases, however, there is no market price alternative and we may have to use the government cost as a proxy when estimating the industry value.

International Accounting Standards Board (2009) IAS 20: Accounting for Government Grants and Disclosure of Government Assistance

23 A government grant may take the form of a transfer of a non-monetary asset, such as land or other resources, for the use of the entity. In these circumstances it is usual to assess the fair value of the non-monetary asset and to account for both grant and asset at that fair value. An alternative course that is sometimes followed is to record both asset and grant at a nominal amount.

OECD (2009) The PSE manual

5.2.4. Administered input prices

Agricultural producers may also be supported through the administration of prices for inputs and services such as energy, irrigation water and transportation. Governments may impose upper price limits for inputs and services provided to agricultural buyers. Some inputs (e.g., electricity) may be supplied by state monopolies, which practice differentiated pricing, whereby agricultural buyers are charged prices below levels set for other users. Such policies are similar in nature to the provision of input subsidies. The associated transfer to

producers per unit of input purchased is equivalent to the price reduction accorded to them compared [with] the price paid by a “reference” (alternative) buyer of the same input. This approach has been used in [the] estimation of implicit support through reduced prices for electricity provided to agricultural producers in Russia. The associated transfer (TPEP) is estimated as follows:

$$TPEP_Y = (PE_{in} - PE_{ag}) \times W_{ag} \quad [5.2]$$

where: $TPEP_Y$ = transfers to producers from preferential electricity price over a year Y ,

PE_{in} = average price per kilowatt hour of electricity charged to industrial users in year Y ,

PE_{ag} = price per kilowatt hour of electricity charged to agricultural users in year Y , and

W_{ag} = kilowatt hours of electricity provided to agricultural users in year Y

The estimation of the implicit price discount depends on the establishment of a “reference buyer” and the extent to which prices charged to different buyers can be compared. Data quality and availability mean that estimating the value of transfers through the use of price gaps is not always possible. For example, in the case of support for water in agriculture, it is difficult to find a price charged to other sectors for water that has the same characteristics as water used for agriculture, e.g., in terms of quality, reliability or timing.

UNSD (2010) *Glossary of terms*

Losses of government trading organizations: these consist of the losses incurred by government trading organizations whose function is to buy and sell the products of resident enterprises. When such organizations incur losses as a matter of deliberate government economic or social policy by selling at lower prices than those at which they purchased the goods, the difference between the purchase and the selling prices should be treated as a subsidy. Entries to the inventories of goods held by such organizations are valued at the purchasers’ prices paid by the trading organizations and the subsidies recorded at the time the goods are sold.

Subsidies to public corporations and quasi-corporations: these consist of regular transfers paid to public corporations and quasi-corporations which are intended to compensate for persistent losses—i.e., negative operating surpluses—which they incur on their productive activities as a result of charging prices which are lower than their average costs of production as a matter of deliberate government economic and social policy. In order to calculate the basic prices of the outputs of such enterprises, it will usually be necessary to assume a uniform ad valorem implicit rate of subsidy on those outputs determined by the size of the subsidy as a percentage of the value of sales plus subsidy.

Subsidies to public corporations and quasi-corporations consist of regular transfers paid to public corporations and quasi-corporations which are intended to compensate for persistent losses—i.e., negative operating surpluses—which they incur on their productive activities as a result of charging prices which are lower than their average costs of production as a matter of deliberate government economic and social policy; by convention, these subsidies are treated as subsidies on products.

**United States Federal Government (2010) *Federal Regulations: Customs Duties*
*Part 351 – Antidumping and countervailing duties***

§ 351.511 Provision of goods or services

(a) Benefit —

(1) In general. In the case where goods or services are provided, a benefit exists to the extent that such goods or services are provided for less than adequate remuneration. See section 771(5)(E)(iv) of the Act.

(2) “Adequate Remuneration” defined —

(i) In general. The Secretary will normally seek to measure the adequacy of remuneration by comparing the government price to a market-determined price for the good or service resulting from actual transactions in the country in question. Such a price could include prices stemming from actual transactions between private parties, actual imports, or, in certain circumstances, actual sales from competitively run government auctions. In choosing such transactions or sales, the Secretary will consider product similarity; quantities sold, imported, or auctioned; and other factors affecting comparability.

(ii) Actual market-determined price unavailable. If there is no useable market-determined price with which to make the comparison under paragraph (a)(2)(i) of this section, the Secretary will seek to measure the adequacy of remuneration by comparing the government price to a world market price where it is reasonable to conclude that such price would be available to purchasers in the country in question. Where there is more than one commercially available world market price, the Secretary will average such prices to the extent practicable, making due allowance for factors affecting comparability.

(iii) World market price unavailable. If there is no world market price available to purchasers in the country in question, the Secretary will normally measure the adequacy of remuneration by assessing whether the government price is consistent with market principles.

(iv) Use of delivered prices. In measuring adequate remuneration under paragraph (a)(2)(i) or (a)(2)(ii) of this section, the Secretary will adjust the comparison price to reflect the price that a firm actually paid or would pay if it imported the product. This adjustment will include delivery charges and import duties.

(b) Time of receipt of benefit. In the case of the provision of a good or service, the Secretary normally will consider a benefit as having been received as of the date on which the firm pays or, in the absence of payment, was due to pay for the government-provided good or service.

(c) Allocation of benefit to a particular time period. In the case of the provision of a good or service, the Secretary will normally allocate (expense) the benefit to the year in which the benefit is considered to have been received under paragraph (b) of this section. In the case of the provision of infrastructure, the Secretary will normally treat the benefit as non-recurring and will allocate the benefit to a particular year in accordance with §351.524(d).

- (d) Exception for general infrastructure. A financial contribution does not exist in the case of the government provision of general infrastructure. General infrastructure is defined as infrastructure that is created for the broad societal welfare of a country, region, state or municipality.

§ 351.515 Internal transport and freight charges for export shipments

(a) Benefit —

- (1) In general. In the case of internal transport and freight charges on export shipments, a benefit exists to the extent that the charges paid by a firm for transport or freight with respect to goods destined for export are less than what the firm would have paid if the goods were destined for domestic consumption. The Secretary will consider the amount of the benefit to equal the difference in amounts paid.
 - (2) Exception. For purposes of paragraph (a)(1) of this section, a benefit does not exist if the Secretary determines that:
 - (i) Any difference in charges is the result of an arm's-length transaction between the supplier and the user of the transport or freight service; or
 - (ii) The difference in charges is commercially justified.
- (b) Time of receipt of benefit. In the case of internal transport and freight charges for export shipments, the Secretary normally will consider the benefit as having been received by the firm on the date on which the firm paid, or in the absence of payment was due to pay, the charges.
- (c) Allocation of benefit to a particular time period. Normally, the Secretary will allocate (expense) the benefit from internal transport and freight charges for export shipments to the year in which the benefit is considered to have been received under paragraph (b) of this section.

§ 351.516 Price preferences for inputs used in the production of goods for export

(a) Benefit —

- (1) In general. In the case of a program involving the provision by governments or their agencies, either directly or indirectly through government-mandated schemes, of imported or domestic products or services for use in the production of exported goods, a benefit exists to the extent that the Secretary determines that the terms or conditions on which the products or services are provided are more favorable than the terms or conditions applicable to the provision of like or directly competitive products or services for use in the production of goods for domestic consumption unless, in the case of products, such terms or conditions are not more favorable than those commercially available on world markets to exporters.
- (2) Amount of benefit. In the case of products provided under such schemes, the Secretary will determine the amount of the benefit by comparing the price of products used in the production of exported goods to the commercially available world market price of such products, inclusive of delivery charges.
- (3) Commercially available. For purposes of paragraph (a)(2) of this section, commercially available means that the choice between domestic and imported products is unrestricted and depends only on commercial considerations.

- (b) Time of receipt of benefit. In the case of a benefit described in paragraph (a)(1) of this section, the Secretary normally will consider the benefit to have been received as of the date on which the firm paid, or in the absence of payment was due to pay, for the product.
- (c) Allocation of benefit to a particular time period. Normally, the Secretary will allocate (expense) benefits described in paragraph (a)(1) of this section to the year in which the benefit is considered to have been received under paragraph (b) of this section.

7.2. Government purchase of goods

WTO (1994) *Agreement on Subsidies and Countervailing Measures*

Article 14 Calculation of the Amount of a Subsidy in Terms of the Benefit to the Recipient

- (d) the...purchase of goods by a government shall not be considered as conferring a benefit unless ... the purchase is made for more than adequate remuneration. The adequacy of remuneration shall be determined in relation to prevailing market conditions for the good or service in question in the country of...purchase (including price, quality, availability, marketability, transportation and other conditions of purchase or sale).

WTO (1998) *Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures*

J. Government Purchase of Goods (Recommendation 16)

In general, it is recommended that the cost to the government of purchasing goods be determined in accordance with the guidelines contained in Article 14(d) of the Agreement. That is, such calculations should be based on “more than adequate remuneration”. To the extent that a government is found to have overpaid for goods in comparison with their prevailing market value, the cost to the government would be the amount of the overpayment. This amount could be treated as a grant in the calculation of ad valorem subsidization.

It is recognized that the guidelines in Article 14 of the Agreement refer to the “benefit to the recipient” context. Nevertheless, in the case of government purchases of goods, the cost to the government and the benefit to the recipient in practice are similar, making it possible to apply the Article 14 guidelines directly.

Government of Canada (2010) *Regulations respecting special import measures*

35.2 Where the subsidy in relation to any subsidized goods is in the form of the purchase, by a government, of goods, the amount of subsidy shall be determined by distributing, in accordance with generally accepted accounting principles, over the estimated total quantity of subsidized goods to which the subsidy is attributable, the difference between

- (a) the amount the government paid or agreed to pay for the goods, and
- (b) the fair market value of the goods in the territory of that government.

European Commission (1998) *Guidelines for the calculation of the amount of subsidy in countervailing duty investigations*³¹

and Government of India (2006) *Customs Tariff Rules Amendment*

(e) Purchases of goods by government

- (i) In a situation where private operators purchase the kind of goods in question as well as the government body, the amount of subsidy [EC: is] [India: should be] the extent to which the price paid for the like product by the government exceeds the highest price offered for a comparable purchase of the same goods by the private sector.
- (ii) If the company involved has not made comparable sales to private operators, details should be obtained of the price paid by private operators to comparable companies in the same sector of the economy, or, if such data is not available, in the economy as a whole. In such a case, the amount of subsidy should be calculated as above.
- (iii) If the government has a monopoly for the purchase of the goods in question, the amount of subsidy as regards the purchase of goods by the government is the extent to which the price paid for the goods exceeds adequate remuneration. Adequate remuneration in this situation is the average costs incurred by the firm selling the product during the investigation period, plus a reasonable amount of profit, which will have to be determined on a case-by-case basis.

The amount of subsidy [EC: is] [India: should be] the difference between the price paid by the government and adequate remuneration as defined above.

Government of Korea (2001) *The Customs Act*

Article 21, para 3, (4) in the case of provision or purchase of goods and services: amount equivalent to the difference between such a price and market price

³¹ © European Union, <http://eur-lex.europa.eu>. Only European Union legislation printed in the paper edition of the *Official Journal of the European Union* is deemed authentic.

CHAPTER 8. INCOME OR PRICE SUPPORT

WTO (1994) Agreement on Subsidies and Countervailing Measures

1.1 For the purpose of this Agreement, a subsidy shall be deemed to exist if:...

(a)(2) there is any form of income or price support in the sense of Article XVI of GATT 1994;

WTO (1998) Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures

N. Multiple Exchange Rate Programmes (Recommendation 19)

It is recommended that the cost to the government of application of a multiple exchange rate system to a given transaction be based on a comparison of the exchange rate actually applied with an appropriate benchmark, such as the market exchange rate or another exchange rate (such as the Purchasing Power Parity rate) published by an international organization.

The cost to the government would be the difference between the absolute value of the transaction at the exchange rate actually applied, and the value that would have resulted if the benchmark rate had been applied.

ABARE (1995) Methods for identifying and measuring cross subsidies in the natural gas market

Cross Subsidies

The simple definition gives rise to the fundamental question to address in identifying and measuring cross subsidies: which costs of supply are relevant? That is, which costs should be compared with revenues in assessing the nature and size of cross subsidies?

In terms of allocative efficiency, the relevant costs are those which arise directly as a result of supplying the output to the consumer, or those that would be avoided if the output was not supplied. What is included in the avoidable cost will depend on the level of analysis -for example, the time horizon, the size of the consumer group being analysed. According to this avoidable cost approach, a consumer is receiving a subsidy if it is paying less than the costs that arise directly as a result of its supply. A cross subsidy is involved if other consumers are paying more than their costs of supply and in doing so making a contribution to the costs that are directly attributable to the subsidized consumer. It is important to note that under this approach, one group of consumers receiving a subsidy does not necessarily imply the other consumers are paying a cross subsidy.

Whether a group is paying a subsidy to another group depends on it not only covering its own avoidable costs but also whether it is contributing to the costs directly attributable to other consumers. Removal of such subsidies will in general shift the allocation of resources. Where all costs can be allocated to particular groups of consumers, this process is relatively straightforward conceptually, although there are some practical issues in defining and valuing what is avoidable. (These practical issues are discussed later in the report.)

More importantly, the issue of equity is not distinct from that of efficiency. That is, the gains from achieving allocative efficiency through the removal of cross subsidies can in principle be used to make all parties better off. This may not be the case when there are joint outputs as some cross subsidies may be purely wealth transfers. Firms tend to supply a range of outputs and some costs will be joint to the supply of more than one output or consumer. By definition, joint costs cannot be allocated to a particular output on the basis of causal

responsibility. As long as they are met, the allocation of resources will not change, no matter how these costs are allocated between different consumer groups.

Where the concern is for the equity implications of the allocation of joint costs, the fully distributed cost method could be utilised. As the name suggests, it involves allocating all the costs of the utility, not only those considered directly attributable to particular consumers. According to this approach, a consumer is receiving a subsidy if revenues do not cover all the costs allocated to it, including a share of joint costs. There is a range of possible methods for allocating joint costs. For example, they can be allocated in proportion to avoidable costs, or in proportion to sales revenue, or equally among all outputs.

The estimated size of the subsidy or cross subsidy is sensitive to the method used to allocate costs, as illustrated in the example in the following section. The simple examples also illustrate the key point that in general the fully distributed cost method can lead to large estimates of cross subsidies compared with the avoidable cost approach, as it will include both allocative transfers (those which impact on efficiency) and wealth transfers (those which only impact on the distribution of income).

Australian Productivity Commission (2002) *Trade and Assistance Review 2001-02 Methodological Annex*³²

2.2. Tariff assistance

Tariffs have a number of direct effects on the returns received by Australian producers. Tariffs on imported goods increase the price at which those goods can be sold on the Australian market, and thus allow domestic producers of similar products to increase their prices. On the other hand, tariffs also increase the price of goods that are used as inputs by Australian producers and thus penalise some Australian producers. This 'penalty' is reduced if tariff concessions are available to Australian users.

Australia's tariffs on imported goods are set by the Commonwealth government and a record of individual tariff levels is maintained in the Australia Customs Tariff Schedule. Australian tariffs are levied on the value of imports in the foreign port, as opposed to the landed value of imports. Tariffs on all imports have been reduced significantly since the early 1970s. As a result, with the exception of goods within the textiles, clothing & footwear (TCF) and motor vehicles & parts (MVP) industries, and of some cheeses, all general tariffs applied to imports are now 5 per cent or less.

The main forms of tariff concessions and duty exemptions include the following.

- Duty exemptions for selected countries. Imports from certain sources, such as New Zealand, Papua New Guinea, the Forum Islands and some developing countries, are given duty free status. This duty free entry is generally granted either to countries with a cost structure similar to Australia or to compensate for a trade disadvantage not typical of most countries exporting to Australia. The main effect of these arrangements is therefore likely to be to divert some trade to these sources, rather than to lower the price of imports (after duty).
- Tariff concessional arrangements, such as the Tariff Concession System (TCS), Project and other policy by-laws, the Automotive Competitiveness and Investment Scheme (ACIS), the Duty drawback scheme, the TCF imports credits scheme and TRADEX. These schemes typically lower the 'operative' tariff rate from the general rate to either zero or a concessional rate; and

³² © Commonwealth of Australia, reproduced by permission

- Duty exemptions for government imports. Certain government imports enter duty free, such imports are usually for defence purposes and general government use.

The Commission's estimates of tariff assistance for output and input goods are derived in two main steps. These involve:

- using the Commission's Tariff and Import Database and Estimating System (TIDES) model to provide estimates of the 'price impacts' of tariffs (and quotas) for both output and input goods; and
- combining these results with ABS Input-Output data to derive NSE estimates of tariff assistance.

2.3. Agricultural pricing and regulatory arrangements

The Commission's estimates of assistance derived from agricultural pricing and regulatory arrangements historically have dominated total measured assistance to the agricultural sector. While many assistance schemes have been discontinued since the 1980s, as recently as 1997, the Commission's estimates incorporated statutory marketing arrangements for dairy, sugar, rice, and eggs, a local content scheme for tobacco leaf, and loan guarantees for the borrowing by the wheat and wool boards. More recently, pricing and regulatory support have been the preserve of the dairy and rice industries, although these too have been wound down significantly.

Rice pricing and regulatory assistance

The rice industry is centred in the Riverina in New South Wales and is assisted through statutory marketing arrangements which allow the NSW Rice Growers Cooperative to vest and market all rice grown in the state. This enables the domestic price of rice to be maintained at higher levels than would prevail under more competitive conditions.

In measuring assistance to the rice industry, it is assumed that the NSW Rice Growers Co-operative is able to increase domestic prices to import parity levels. Information on import parity price levels for the rice industry is derived from ABS merchandise trade import data. An estimate of assistance is then derived by multiplying the amount by which domestic prices increase (import parity less export parity) by domestic rice production.

FAO (2004) *Guide for identifying, assessing and reporting on subsidies in the Fisheries Sector*

6.5.5. Income support and unemployment insurance programmes

There are a variety of income support schemes and unemployment insurance schemes for fishers. Some of these are part of general social insurance schemes while others are specifically designed for fishers. The schemes can be co-financed by contributions from the fishing industry or be entirely publicly funded.

Some examples of the fisheries specific ones are:

- Bad weather fishers unemployment compensation scheme
- Fishers off-season unemployment insurance
- Fishers vacation support payments
- Fishers minimum basic wage
- Government funded health programmes for fishers

Generally, these schemes belong to Category 1 and their value to the industry corresponds to the difference between the actual net income fisheries employees receive with the schemes as compared to how much they would have received without them. Industry contributions—or contributions directly by the employees, other than ordinary income tax or other obligatory fees not specific to the fisheries sector—should be deducted to arrive at this net value.

BOX 9

Income guarantee scheme - An example

In our invented country Seidisbus, the fishers in the semi-industrial and industrial fisheries are organized in a Fishers' Association that administers various matters on behalf of the fishers and represents them in different contexts. The Association collects fees from its members to pay for its running costs but there are also a number of support schemes for which the Association receives funding from the government. For example, there is an income guarantee scheme that compensates fishers for loss of income during periods when fishing fails that is financed at 90% by the state. The scheme guarantees a monthly income of US\$ 500. During the year 2000, a total of US\$ 500 000 was paid out under the scheme.

In the 2000 fisheries subsidies study, the **cost of the scheme for the government** was calculated as 90% of 500 000 = **US\$ 450 000**. No overhead or administrative cost is considered because the Association manages the scheme and the administrative cost of the Ministry of Fisheries for disbursing the funds is minimal.

The **value of the scheme to the industry** is considered equivalent to the **US\$ 450 000** received from the government and disbursed to the fishers.

BOX 10

Two-way subsidies

Care should be taken to understand situations where profit-enhancing and profit-decreasing subsidies are combined. When there are industry contributions to support schemes and subsidy programmes, these should be deducted from the gross public cost and from the calculated industry value to arrive at the net public cost and the net value to the industry. However, it is usually good practice to show both the gross and net values in a fisheries subsidies report.

6.5.6. Price support

Market price support can take several forms and is defined by OECD as occurring when the domestic price of a product is higher than the world price as a result of government policy (OECD 2000). Price regulation systems such as those in place in, for example, the EU and Norway are Category 1 subsidies. Through these systems, compensation is given to fishers whose fish do not reach an established norm price. Price compensation systems can be financed, at least partly, by the industry itself through levies on landed fish.



The subsidy's value to the industry is the actual compensation paid out assuming it equals the difference between the amount the fisher would have received had there not been a price support scheme and the total amount the fisher has received with the scheme. If the programme is co-financed by the industry, the industry contributions should be deducted in order to arrive at the net value of the programme. If a government body administers the programme, the cost of the scheme to the government should include an estimated administration cost in addition to the total compensation payments.

A price support could of course also take other forms and could concern, for example, inputs to the fishing or aquaculture subsectors, e.g., drugs needed for breeding of fish or support for the production of a certain gear. Price support also exists with regard to transport costs, often with the objective to reduce disadvantages in remote areas and forming part of regional development programmes.

6.5.7. Export incentives and other market interventions

The marketing side of the industry—both regarding domestic sales and exports—can be supported in many other ways other than by direct price support, e.g.:

- Organization of national markets and provision of related infrastructure
- Regulations in national markets (e.g., sanitary and health standards, obligation of sales through auction, ban on using certain species for reduction, etc.)
- Aid granted to domestic marketing
- Sales tax exemptions
- Promotion of fish consumption
- Direct export incentives
- Export and marketing assistance, e.g., measures assisting foreign trade such as international trade fares or provision of information on international markets
- Market research
- Free trade zones

These measures are generally Category 1 or 2 subsidies and should be categorized according to whether the particular support programme involves a direct financial transfer to the industry (Category 1), or not (Category 2). Some activities may be classified as Category 3 subsidies, e.g., certain types of market regulations.

When assessing the value of the subsidies, there are many different aspects to consider. For example, the organization of national markets probably involves administration—i.e., personnel and overhead costs—but it may also include the physical infrastructure in the form of fish markets. Larger infrastructure projects clearly targeting the fisheries sector such as fish markets—as well as fishing harbours discussed below—are generally examples of public investment subsidies to the fisheries industry.

Government activities that indirectly support the marketing side of the fisheries sector are difficult to assess. For example, the promotion of fish consumption could be part of a broad government information campaign for healthier food habits and the fisheries sector would then only be one among other food sectors being

affected. An estimate of the value of the campaign to the fisheries industry should then be based on only a part of the overall cost for the campaign. This cost accruing to the fisheries sector could be calculated according to a distribution index based on the total value added created by the different subsectors, i.e., generally reported as the different subsectors' contribution to GDP[8]. Other distribution indices that could be used, depending on circumstances, include, for example, the number of employees or the total sales value (turnover) in the various subsectors. An alternative method would be to use the concept of marginal cost; the value of the subsidy could then be set equal to the additional cost incurred for allowing the fisheries sector to participate in the activity.

OECD (2009) *The PSE manual*

4.2. Price transfers to producers

In calculating the [OECD's agricultural support] indicators, price transfers to producers are called Market Price Support (*MPS*) and are defined as: the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policy measures that support agriculture by creating a gap between domestic market prices and border prices of specific agricultural commodities.

Before presenting a general formula for estimating *MPS*, two new items need to be explained.

One is the Price Levies (*LV*), sometimes termed production taxes, which can be imposed on producers as part of market price support policy. An example of such a tax is the levy imposed on EU milk producers when they exceed their production quotas. Another example would be levies charged on producers to finance some of the cost of export subsidisation. *LV* is an observed value, which is obtained from the information on budgetary expenditures.

The second item is the Excess Feed Cost (*EFC*), a component accounting for the price transfers that go from livestock producers to feed producers as a result of policies which alter the domestic market price for feed crops, an important input for the former group.

The Price Levies and Excess Feed Cost are accounted for in the *MPS* in order to exclude from the value of price transfers to producers contributions that producers make to the transfers. At the same time, the *EFC* adjustment also eliminates double counting of price transfers in the aggregation of *MPS* across commodities when deriving a national (aggregate) level *MPS*.

Based on the analysis in the previous section, a general formula for the calculation of *MPS* for commodity *i* is expressed as:

$$MPS_i = TPC_i + TPT_i - LV_i - EFC_i \quad [4.6]$$

where: TPC_i = Transfers to Producers from Consumers of commodity *i*

TPT_i = Transfers to Producers from Taxpayers of commodity *i*

LV_i = Price Levies for commodity *i*

EFC_i = Excess Feed Cost for commodity *i* (livestock commodities only)

EFC is included in the estimation of *MPS* for livestock commodities only and calculated as:

$$EFC_i = \sum_j (MPD_j \times QC_j^i) \quad [4.7]$$

where: EFC_i = Excess Feed Cost for livestock commodity i
 MPD_j = Market Price Differential for feed crop j
 QC_j^i = Quantity of crop j used as an input into the production of livestock commodity i

Note that the quantity of crops used should include *only domestically produced feed*, so that the total quantity of each feed crop, summed up across all types of livestock ($\sum_i QC_j^i$) satisfies the following condition: $\sum_i QC_j^i \leq QP_j$, where QP_j is the total domestic production of crop j . This condition is important in the situation when consumption of a feed crop is partly covered by imports. In this case it is the quantity of domestic production (QP_j) of that crop that is used for calculation of the EFC , and not the total quantity consumed for feed. This condition is necessary to ensure that *the EFC component of the MPS is calculated on the basis of domestic production*, consistent with all other MPS components.

The EFC adjustment may increase or reduce the value of MPS for livestock depending on [the] particular mix of price-affecting policies in place. For example, in a situation where both livestock production and feed-crop production are supported by policies, resulting in positive $MPDs$, the EFC adjustment would reduce the MPS value for livestock. This occurs because livestock producers pay higher prices for feed crops as a result of price support for these commodities. The opposite would be true if policies are in place to decrease the price of feed, resulting in a negative MPS for feed crops. In this case, livestock producers receive additional price support because they can purchase feed at lower prices.

Substituting equations 4.2, 4.4 and 4.5 into 4.6 yields equations 4.8a and 4.8b which distinguish the import and export situation. Both equations reduce to the same expression of transfers to producers. However, the transfers to producers from consumers (TPC) and from taxpayers (TPT) are identified separately, and may then be used to calculate other indicators and to analyse the composition of support.

Import Situation

$$MPS_i = (MPD_i \times QP_i) - LV_i - EFC_i \quad [4.8a]$$

In the import situation, TPT is zero.

Export Situation

$$\begin{aligned} MPS_i &= (MPD_i \times QP_i) + (MPD_i \times (QP_i - QC_i)) - LV_i - EFC_i \\ &= (MPD_i \times QP_i) - LV_i - EFC_i \end{aligned} \quad [4.8b]$$

In calculating the indicators, MPS is first estimated for individual commodities. These estimates are used to calculate a national (aggregate) MPS , which is a major building block for the calculation of the PSE.

UNSD (2010) Glossary of terms

A subsidy on a product is a subsidy payable per unit of a good or service produced, either as a specific amount of money per unit of quantity of a good or service or as a specified percentage of the price per unit; it may also be calculated as the difference between a specified target price and the market price actually paid by a buyer.

PART 3. ADJUSTMENTS

Part 3 of the survey contains four adjustments that need to be made in order to obtain a more accurate estimation of the level of support that is being provided. As with the various valuation methodologies covered in Part 2, the extent and scope of these adjustments vary between organizations.

Chapter 9 deals with deductions that are made to the value of support, for example, contributions that subsidy recipients make to the subsidy program and costs associated with applying for the subsidy.

Chapters 10 and 11 are concerned with the spatial and temporal allocation of subsidies respectively. These adjustments are made in recognition of the fact that a subsidy can provide benefits to more than one sector or product and for more than one annual period, for example, should an investment grant be allocated fully to the year in which it is provided or over the life of the asset which is purchased with the grant.

Chapter 12 details the various denominators that are used in order to obtain an indication of the level of subsidy being provided. Because subsidy values are influenced by the relative size of various sectors in the economy and the rate of inflation, a relative value is required in order to compare subsidy levels between countries, evaluating changes over time, or assessing the level of support provided within a country to different sectors. A consistent denominator allows the value of subsidies to be compared over time and among sectors or products. While the ASCM refers to a per-unit subsidy, there are other denominators which can be used.

CHAPTER 9. DEDUCTIONS FOR FEES, EXPENSES AND DEFERRED RECEIPTS

Government of Canada (2010) Regulations respecting special import measures

26. There shall be deducted from the amount of subsidy in relation to any subsidized goods
- (a) the amount of any fee or other expense necessarily incurred by the recipient of the subsidy in obtaining the subsidy;
 - (b) the amount of any tax, duty or other charge levied by a government against the recipient of the benefit of the subsidy for the purpose of offsetting the subsidy; and
 - (c) the amount of any loss in the value of the subsidy that results from the deferred receipt of the subsidy where the deferral has been imposed by the government that granted the subsidy.

European Commission (1998) *Guidelines for the calculation of the amount of subsidy in countervailing duty investigations*³³

and Government of India (2006) *Customs Tariff Rules Amendment*

Deduction from amount of subsidy

1. [EC: Article 7(1) of Regulation 2026/97 provides that] only the following may be deducted from the amount of subsidy:

- (i) Any application fee, or other costs necessarily incurred in order to qualify for, or to obtain, the subsidy

It is important to note that it is up to the exporter in the country concerned to claim a deduction; in the absence of such a claim accompanied by verifiable proof, no deduction [EC: will] [India: should] be granted. The only fees or costs that may normally be deducted are those paid directly to the government in the investigation period. It must be shown that such payment is compulsory in order to receive the subsidy. [EC: Thus payments to private parties, e.g., lawyers, accountants, incurred in applying for subsidies, are not deductible. Neither are voluntary contributions to governments, for example donations.] [India: Neither the payments made to private parties, e.g., lawyers, accountants, incurred in applying for subsidies, nor the voluntary contributions governments, for example donations, are not deductible.]

- (ii) Export taxes, duties or other charges levied on the export of a product to [EC: the Community] [India: India] specifically intended to offset the subsidy

Such claims for deductions should only be accepted if the charges involved were levied during the investigation period, and it is established that they continue to be levied at the time when definitive measures are recommended.

2. No other deductions can normally be made from the amount of subsidy. No allowance can be made for any tax effects of subsidies or for any other economic or time value effect beyond that which is specified in this communication.

OECD (1995) *Industrial subsidies: A reporting manual*

Gross Government Budget Expenditure (GGBE) is a primary indicator of financial flows relating to support programmes. It measures the total amount of expenditure conferred to companies (whether or not the expenditure includes a subsidy), together with any uncollected taxes from them per year or over the entire duration of the programme. It does not, however, take into account reverse financial flows from companies to the budgets of the respective governments, such as interest paid, fees or dividend income, reimbursements or proceeds from equity sales.

³³ © European Union, <http://eur-lex.europa.eu>. Only European Union legislation printed in the paper edition of the *Official Journal of the European Union* is deemed authentic.

Net Cost to Government (NCG) measures the net cost to government per year of support to industry. It can be seen as an approximation of subsidies measured from a public budget point of view. It calculates the difference between the cost of funding a programme in any given year (calculated using the government borrowing rate) and the revenue generated for the public budget by the same programme. It estimates, without taking into account administrative costs, the net transfer during any one year from the public to the enterprise sector resulting from a given programme.

OECD (2009) *The PSE manual*

5.1.3. *Treatment of policy administration costs*

Administration costs include those associated with the design, implementation and evaluation of agricultural policies. It is important to distinguish different types of budgetary expenditures related to administration of agricultural policies:

- Administrative expenditures by ministries, including staff salaries, material, building and other costs.
- Salaries and wages of those employed in research, inspection, extension and other services.
- Payments to banks, insurance companies, producer organisations or commodity boards to cover their costs associated with implementing support policies.

The principle is to exclude administrative expenditures of the ministries from the estimation of support as they represent expenditures on operations common to any public structure and are not policy transfers as such. However, when the policy measure is actually delivering a service that benefits producers individually (e.g., extension) or collectively (e.g., research and inspection), expenditures associated with the delivery of the service, mainly the salaries of extension advisors, inspection officers, researchers, etc., are included in the PSE and the GSSE respectively.

In some countries, the government grants other agencies (public, mixed or private bodies) responsibility for implementing some agricultural policy measures. Commodity boards can be in charge of intervention and storage measures. Producer organizations may be involved in policy implementation. Banks may deliver agricultural investment loans with preferential conditions (generally interest concessions) and in many countries, insurance companies deliver subsidized insurance programs. Consulting companies or NGOs can help farmers prepare applications for project-based measures.

When policies are delivered by semi-public or private companies, the government may compensate them for part or all of the costs associated with implementing the policy measure, in addition to channelling financial support to farmers through these organizations. As in the case of direct delivery by ministry officials, these implementation costs are excluded from the PSE. In the case of investment and insurance programs, the government may pay for two components: support to farmers (e.g., interest concession on loans, or a subsidy to insurance premia), as well as the program administration costs, which are transfers to the implementation agencies. Those two cost components are usually identified in the program. The first one is included in the PSE, while the other is not.

CHAPTER 10. ALLOCATION TO SECTORS OR INDUSTRIES

WTO (1998) Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures

D. “Tying” of subsidies to particular products (Recommendation 6, Part F)

The reference in paragraph 3 of Annex IV to the “tying” of subsidies to certain products in calculating ad valorem subsidization was discussed. This provision indicates that for subsidies tied to the production or sale of a given product, the relevant denominator is sales of that product, while paragraph 2 of Annex IV provides that for all other subsidies, the relevant denominator is the recipient firm’s total sales. Paragraph 3 does not specify how “tying” is to be established, however, leaving open a number of questions, for example, how closely related to a product a subsidy must be to be “tied” to that product; and how the sale of assets/plants affects the amount of a subsidy and its “tying” to a product.

It was noted that the panel report on Lead and Bismuth Steel contains language relevant to the question of “tying” which could provide useful guidance, and which forms the basis for the Group’s recommendations on this point. Under this approach, a subsidy would be deemed to be tied if its intended use was known to the giver of the subsidy, and so acknowledged, prior to or concurrent with the subsidy’s bestowal. It was recognized that other possible approaches might exist as well.

Australian Productivity Commission (2006) Trade and Assistance Review 2004-05 Methodological Annex³⁴

2.1. The initial benefiting industry concept

The Commission applies an initial benefiting industry (IBI) methodology to help guide the process of allocation. Under this approach, the budgetary assistance provided by a program is allocated to the industry grouping hosting the firm that initially benefits from the assistance. In cases where budgetary assistance benefits firms indirectly via an intermediate organisation, such as funding for CSIRO, the beneficiaries are identified as the firms that utilise these services; not the organisations that deliver the budgetary assistance.

The IBI approach does not attempt to identify all of the beneficiaries of the various forms of budgetary assistance. It may be that industry groupings not identified as initial beneficiaries benefit subsequently from assistance targeted to another grouping. For example, budgetary assistance to the wool industry is allocated to Grain, sheep and beef cattle farming. However, this assistance could indirectly benefit other industry groupings, say to Services to agriculture in the case where wool producers use sheering services. Further, an increase in demand for sheering services may increase demand in the manufacturing sector for Machinery and equipment (for example, hand pieces) associated with the sheering industry.

To identify all of the beneficiaries of budgetary assistance would require working through the production chain to find how industry groupings are likely to be affected by the initial assistance. The Commission uses general equilibrium models to do this in certain instances, such as when conducting inquiries into specific industries.

However, for the purposes of annual reporting, identifying the incidence of assistance by the initial benefiting industry or industries provides a reasonable indication of the how the incentive structure to industry is affected by budgetary assistance.

³⁴ © Commonwealth of Australia, reproduced by permission

2.2. Allocating assistance to industry groupings

Information to allocate funding for all measures was sought from budget papers, legislation, ministerial statements and various departmental annual reports and websites. The Commission also consulted organisations responsible for particular budgetary assistance measures.

In some instances, notably in relation to rural R&D corporations, programs are funded by a mix of industry levies and Government contributions. Where this occurs, the Commission includes only the Government's contribution as assistance, because the levy is considered to be a method of collecting funding from industry participants (to be redistributed to the industry in the form of services such as R&D or marketing).

Many measures are targeted at a particular industry, so allocating the assistance is straightforward. For example, funding for the Automotive Competitiveness and Investment Scheme is allocated to the Motor vehicles and parts industry grouping, and funding for the Egg Corporation is allocated to the Poultry farming industry grouping.

Allocating funding for non-targeted measures, where there is more than one IBI, is often not as straightforward. The Commission uses a variety of methods to do this:

- Where the Commission could obtain sufficiently detailed data for a program, it has used this information to distribute the program's funding among the benefiting industries. For example, the ATO supplies the Commission with claims data for the Premium R&D tax concession which is sufficiently detailed to determine the extent to which each industry grouping benefits from the program.
- For programs that provide grants to industry and where the Commission has details on the individual grants, this information is used to assign each grant to a particular industry. For example, Department of Agriculture, Fisheries and Forestry publishes project details for grant recipients under the Farm Innovation Program. These details are used by the Commission to determine the industry grouping which benefits from the program.
- Finally, in some cases, particularly where a new measure has been introduced, there is insufficient information to make an allocation. Funding for these measures has been assigned to an 'unallocated' category.

OECD (2009) *The PSE manual*

3.1. Identifying policies that support agriculture

- Policies are included in the estimates of support if agriculture is the only, or the major, beneficiary of the policy.
- It does not matter which government ministry or level of government implements the policy.

The range of policy measures included in the estimation of agricultural support are determined by the definitions and principles outlined in Chapter 2. In all cases, which government body is responsible for the policy measure giving rise to the transfer has no impact on the decision to include it or not. In other words,

policy measures supporting agriculture may be under the responsibility of many different government ministries, and not just the ministry responsible for agriculture, and at different levels of government, e.g., central, provincial, prefectural or state. Alternatively, policies implemented by a ministry responsible for agriculture but related to non-agricultural activities, e.g., forestry or fisheries, are not considered.

From the definition of the PSE, a policy measure will be included in the estimation of agricultural support if it: (a) provides a transfer whose incidence is at the farm level; and (b) is directed specifically to agricultural producers or treats agricultural producers differently from other economic agents in the economy. The support provided by the policy measure may be delivered in several different ways: an increased output price (market price support); a reduced input price (e.g., a fertiliser subsidy); a direct payment (a cheque from the government); a revenue foregone by government (e.g., a tax concession); a reimbursement of a tax or charge (e.g., as for fuel taxes in some countries); or a gratuitous service in kind to individual farmers (e.g., delivery of extension services).

Support for farm product prices, or direct payments based on agricultural production or agricultural area, are clearly agricultural and producer-specific, and are included in the PSE indicator. Similarly, a payment reducing the price of fertiliser or pesticide for application on farm land, or a payment compensating for yield loss as a result of practising organic farming, is clearly agricultural and producer specific and are also included in the PSE. On the other hand, a tax concession that is available to all small businesses or to all self-employed people in an economy would not be included in the PSE because it is not specific to agriculture, even though it benefits farmers, perhaps substantially.

With respect to some measures, a degree of judgement needs to be exercised. This is illustrated in the following examples.

- A fertiliser subsidy may benefit gardeners and owners of golf courses, but the main beneficiary will usually be farmers. In this case, the policy measure is judged to be specific to farming and is included in the PSE. However, in the estimation of support, only the value of transfers going to agriculture is included.
- Many countries grant concessions on the use of fuel in machines for off-road use. All machinery-using sectors may benefit, or a limited number of sectors may be defined by the enabling regulations. In these cases, the benefit will be included in the PSE if agriculture is singled out as a target sector for the benefit or if, *de facto*, it is the major beneficiary of the measure.
- A grant for the conversion of farm buildings to self-catering accommodation for tourists will not be included unless eligibility for the grant is confined to farmers.
- Differential treatment of farmers in social security measures is not included because it has not been possible to determine whether the conferred benefits are specific to primary agriculture.
- Measures that provide support to individuals who may not be farmers to carry out actions on farms, e.g., a stone wall payment [or an] environmental measure that is also available to non-farmers may be included, although only the value of transfers going to farmers would be included.

The definition of the GSSE allows for a wider range of policy measures to be included in the indicator. As with the PSE, the focus is on the primary sector – agricultural production at the level of the farm. Two principal types of expenditures are included as follows:

- Expenditures associated with policy measures that are included in the PSE, but which are not received directly by farmers. For example, the costs associated with the storage and disposal of price-supported commodities by the government or an appointed agency are included in the GSSE.
- Services that benefit primary agriculture but whose initial incidence is not at the level of individual farmers: for example, agricultural education, research, marketing and promotion of agricultural goods, general infrastructural investment relating to drainage, and irrigation, and inspection services beyond the farm gate.

From the definition of the CSE, policy measures which provide positive transfers to first consumers of agricultural commodities, e.g., flour mills, meat processing plants or fruit packing houses, are also included when they are provided specifically to offset the higher prices that result from market price support. Domestic food aid associated with measures that support agriculture, e.g., distribution of government stocks acquired in the context of market interventions, are also included.

A continual effort is made to ensure consistency in the treatment and completeness of policy coverage. Revising the calculations and improving consistency in light of more updated data and information on policy measures is an ongoing process undertaken in conjunction with the preparation of the reports on “Agricultural Policies in OECD Countries: Monitoring and Evaluation” and “Agricultural Policies in Non-OECD Countries: Monitoring and Evaluation”.

6.4. Indicators of producer support based on the degree of commodity specificity

The PSE can be broken down into four separate indicators of support based on the degree to which policy measures deliver support on a commodity basis: i.e., support provided to a single commodity, a group of commodities, all commodities, or whether producers are not required to produce commodities to receive support (Table 6.9).

TABLE 6.9. INDICATORS OF PRODUCER SUPPORT BASED ON THE DEGREE OF COMMODITY SPECIFICITY

Indicator	Relationship with PSE categories
I. Producer Single Commodity Transfers (producer SCT) — Commodity <i>i</i> (1 to <i>n</i>) (producer SCT _{<i>i</i>}) ¹	Sum of all single commodity transfers in PSE categories A, B, C and D - Includes only specific policy measures for commodity <i>i</i>
II. Group Commodity Transfers (GST) — Group <i>k</i> (1 to <i>m</i>) (GCT _{<i>k</i>})	Sum of transfers to groups of commodities in PSE categories B, C and D - Includes only specific policy measures for group <i>k</i>
III. All Commodity Transfers (ACT)	Sum of transfers to all commodities in PSE categories B, C and D
IV. Other Transfers to Producers (OTP)	Sum of transfers in PSE categories E, F and G
Total PSE (I+II+III+IV)	Sum of transfers to single, group and all commodities and other transfers (producer SCT+GST+ACT+OTP)

1. For policy measures applying to groups of commodities, the PSE/CSE database for each country contains complete information on the list of commodities included in groups.

These four categories are mutually exclusive in the sense that payments included in one category are not included in others, e.g., transfers to wheat in the producer SCT are not included in transfers to cereals as a group in the GCT category. In this way, there are no overlaps between the categories, and they therefore add up to the total PSE.

The first step in calculating these indicators is to attribute each policy measure to one of these four categories, and then within the producer SCT and GCT categories to specific commodities or groups of commodities respectively. This is part of the process of labelling policy measures as detailed in section 3.3.3. The following four sub-sections explain further details about these indicators.

Table 6.10 shows how this attribution is made for policy measures in the example. The two letter symbol in the column titled “Single commodity” indicates the commodity to which support is provided. These are policies whereby receipt of the transfer requires the production of that designated commodity. MPS is by definition included in the producer SCT, as it captures the transfers associated with policies affecting the price of a particular commodity. The label “AC” is given to policy measures which place no restrictions on the commodity produced but require the recipient to produce some commodity of their choice. Policy measures in the last three PSE categories (E, F and G) are labelled “OTP” because by definition these provide transfers that either do not require commodity production or their commodity specificity is unknown.

CHAPTER 11. ALLOCATION TO PARTICULAR TIME PERIODS

WTO (1998) Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures

I. EXPENSING VERSUS ALLOCATION OF SUBSIDY BENEFITS

A. Implications for Determination of Serious Prejudice based on 5 per cent Threshold

The question of whether and under what circumstances subsidies should be allocated over some multi-year period, versus attributed to a single year (i.e., “expensed”) was extensively discussed. In particular, it was noted that although the payment of a subsidy generally would occur at a single moment in time, it might not be appropriate in the context of Article 6.1(a) to attribute that subsidy (i.e., the presumption of serious prejudice based on more than 5 per cent ad valorem subsidization of a product) exclusively to a single year. If this were done, even a very large subsidy would have no effects, for purposes of Article 6.1(a), beyond the year in which it was granted. That is, regardless of its size, the impact of any given subsidy would vanish, for purposes of Article 6.1(a), as of the end of the year in which it was granted. In addition, if the possibility of allocation did not exist, the ad valorem subsidization during the year in which the subsidy was granted could be overstated.

Such an outcome was deemed inappropriate under Article 6.1(a) for a number of reasons. First, if the presumption of serious prejudice could never last beyond a single year, this might make implementation of an appropriate remedy (i.e., removal of the adverse effects of the subsidy or withdrawal of the subsidy) difficult where serious prejudice under Article 6.1(a) was found. For example, by the time a remedy was obtained, the “adverse effects” of the subsidy purportedly would have vanished of their own accord. Second, if expensing resulted in overstatement of the ad valorem subsidization for the year in which the subsidy was granted, this could give rise to an unjustified presumption of serious prejudice for that year. Moreover, paragraph 7 of Annex IV, by referring to pre-WTO subsidies whose benefits were allocated to future production, suggests that allocation of subsidy benefits is foreseen in the context of calculating 5 per cent ad valorem subsidization of a product. If there were no possibility of allocating any post-WTO subsidies, this would create an inconsistency between the allowed treatment of pre and post-WTO subsidies in the context of Article 6.1(a).

On the other hand, allocating all subsidies, regardless of their nature, would seem inappropriate if their impact upon the recipient was limited and of short duration. Moreover, if all subsidies were allocated, the duration of the presumption of serious prejudice might be inappropriately lengthened. Thus, it was concluded that not all subsidies should be allocated.

It thus was necessary to identify under what circumstances subsidies of various kinds should be allocated versus expensed. The Group developed recommendations in this regard, in the form of an illustrative table of subsidies that should be allocated versus expensed, along with a cover note explaining the underlying principles for such a categorization. It was felt that such a table would create the most transparency and predictability for all concerned. The illustrative table and cover note are presented in Recommendation 1.

B. Illustrative Table and General Principles (Recommendation 1)

The illustrative table reflects the Group’s conclusions regarding a number of points. First, the table indicates that certain types of subsidies (e.g., grants) may be either expensed or allocated, depending on the circumstances. Where a given type of subsidy could be either expensed or allocated depending on the circumstances, it is shown straddling the two columns. Other types of subsidies generally would be either

always expensed or always allocated. Certain considerations relevant to the question of expensing or allocating different types of subsidies also are reflected in the table.

The table and cover note reflect certain additional recommendations, as well. The first of these is that research subsidies be presumptively allocated, unless expensing is demonstrated to be more appropriate in a given case. Similarly, it is recommended that non-recurring and/or large subsidies be presumptively allocated, unless expensing is demonstrated to be more appropriate in a given case. Further, it was deemed appropriate, primarily from the standpoint of administrative convenience, that very small subsidies be expensed regardless of type or other considerations. A level of less than 0.5 per cent of sales for any individual subsidy is recommended for this threshold. Finally, the cover note indicates that the inclusion of any given type of measure in the table is not intended to imply that such a measure in all cases would be relevant in the context of Article 6.1(a). Rather, only measures meeting the Agreement's definitions of "subsidy" and "specificity" would be considered in this context.

The table includes a category for export-related subsidies, notwithstanding that the relevance of the question of expensing versus allocating in the context of such subsidies might be limited, at least with respect to those export-related subsidies that are export subsidies in the sense of the Agreement. That is, the prohibition on export subsidies, and the non-applicability to such subsidies of the presumption of serious prejudice where transition periods apply, could mean that subsidies of this type might only rarely be at issue under Article 6.1(a). On the other hand, where the prohibition applies, the Agreement does not appear to force a Member to allege that a subsidy is prohibited, and therefore to seek a remedy only under Article 4. Thus it was deemed appropriate to include a reference to these subsidies in the table.

The table also reflects discussions as to whether subsidies for debt forgiveness and loss coverage should be allocated or expensed in the context of Annex IV calculations, or whether they should be considered at all, given that such subsidies would give rise to a separate presumption of serious prejudice. For the reasons discussed in Sections VIII.D and E, it was deemed appropriate to include such subsidies in the expense/allocate table, without prejudice to the existence of any separate presumptions of serious prejudice under Article 6.1(b), (c) or (d).

Regarding the subsidies in the table that are shown as sometimes being expensed and sometimes allocated, the discussion focused on further elaborating the criteria that might be applied in making such a determination in any given case. The following general principles were identified, affirmative answers to one or more of which normally would point toward allocating, rather than expensing, a given subsidy:

1. Whether the purpose of the subsidy was for the purchase of fixed assets
2. Whether non-recurring and/or large
3. Whether oriented toward future production
4. Whether consisting of equity
5. Whether carried forward in recipient's accounting records

These principles also generally underlie the recommendations as to expensing or allocating the remaining types of subsidies shown in the table.

The purpose of a subsidy, in particular whether it is used for acquisition of assets, was deemed relevant by the Group. The Group noted that as a general principle, subsidies for asset acquisition should be allocated over time, while recurring subsidies to cover operating costs or other subsidies for non-asset purposes might in many circumstances be expensed.

The frequency and size of a subsidy were deemed relevant to the question of expensing versus allocating. Just as it is recommended that recurring and/or small subsidies be expensed, so is it recommended that non-recurring and/or large subsidies generally be allocated. One consideration in this context is that it might be illogical to expense very large subsidies due to the likely substantial impact that such subsidies would have on the recipient companies beyond the year in which they were received. For example, it is likely that non-recurring large subsidies would be used to purchase fixed assets, or even if not so used, would free up a comparable amount of company funds for this purpose. By contrast, recurring subsidies are more likely to be relatively small, are more likely to be used for non-asset purposes, are more likely to be oriented toward present rather than future production, are less likely to consist of equity, and are less likely to be carried forward in the recipient's accounts, than are nonrecurring subsidies.

The remaining general principles are essentially self-explanatory. Whether a subsidy is oriented toward production in future periods, consists of equity, or is carried forward in the recipient's accounts were viewed as related to the question of whether its benefits persist beyond a single period, and hence whether it should be allocated to future periods.

II. ALLOCATION PERIOD (Recommendation 2)

For those subsidies that will be allocated, it was recognized that guidance would be useful as to how to determine the allocation period. As a general matter, it is recommended that the average useful life of all of the recipient's physical depreciable assets should be used as the allocation period for all types of subsidies except long term loans, and possibly equity infusions, depending on the circumstances. It is further recommended that the average useful life of assets be calculated as the ratio of the total average book value of operational assets to the average annual depreciation expense.

The recommendations establish a hierarchy of data sources for calculating the average useful life of assets in a given situation. The preferred source (from the standpoint of accuracy) is deemed to be the overall information for the firm or firms receiving the subsidy. If such data cannot be obtained or are not reasonable, data for other firms producing the product in the same country could be considered, or failing that, data for firms in the same business sector in that country (defined as the next largest category in the International Standard Industrial Classification ("ISIC") or similar nomenclature system). If this is not possible or feasible, data for firms producing the product outside that country could be used. Issues that could affect the suitability of a given firm's data could include the calculation of depreciation expense on some basis other than the useful life of assets, the use of a depreciation method other than straight line, and/or irregular changes to the asset pool. Regardless of the data source, the Group recommends the method for calculating the useful life of assets that is described in paragraph 13 and Recommendation 2.

The most recent relevant multi-year period which is representative of normal operations should be chosen for calculating the necessary averages, to prevent potential extraordinary events in a single year from distorting the calculation. Normalizing adjustments may be necessary if assets have undergone extraordinary revaluations, or in the case of hyperinflation. Moreover, accounting data should be preferred to tax depreciation data in selecting a data source for the calculations, as the former are the more likely to reflect the true economic lifespan of assets.

For subsidies from long-term loans, it is recommended that the allocation period be the life of the loan. For equity infusions, if the amount of the subsidy can be calculated as a grant (i.e., if there is a market price for the equity (see Section VIII.G) the allocation period would be the useful life of assets, calculated as described. If there is no such market price, however, and some other method is used to determine the amount of any subsidy, another basis for determining the allocation period might be more appropriate. For example, the period during which an investor might “reasonably” expect a return on an investment could be used, or it could be assumed that a cost to government potentially could arise during the entire period in which the government held the equity.

III. GOVERNMENT COST OF FUNDS AND TIME VALUE OF MONEY

It was recognized that the cost to government approach mandated in paragraph 1 of Annex IV raises the question, affecting all types of subsidies, of how a government’s cost of funds should be measured. That is, governments raise funds in two ways, taxation and borrowing, each of which carries some cost. Some Group members viewed these costs as limited to the observable (“monetary”) costs associated with raising the funds. Others believed that these costs also include certain non-observable costs, in particular the opportunity cost to the government associated with using such funds, and potential indirect costs of taxation. The issue discussed was the extent to which some or all of these costs should be reflected in Article 6.1(a)/Annex IV calculations.

With respect to loans, as set forth in the relevant section of this report, the Group recommends using an appropriate government borrowing rate (i.e., a bond rate) as a proxy for the government’s cost of funds. Thus, the discussion in this section of the government’s cost of funds applies to allocated subsidies other than loans.

Regarding the observable monetary component of a government’s cost of funds, the Group generally agreed that this is comprised of the administrative costs incurred in raising taxes, as well as the interest cost incurred on government borrowing. The amounts of such costs in principle can be directly derived from government accounts.

In this context, some Group members took the view that a weighted average monetary cost of funds should be calculated, and attributed to every subsidy provided. Thus, under this approach, the same underlying (average) monetary cost of funds would be attributed to all subsidies. That is, no attempt would be made to identify particular subsidies with particular sources of funds. The reasoning behind this proposed approach was that government funds from all sources most often are commingled in a general revenue account, making it impossible in most cases to identify particular government expenditures (including subsidies) with particular sources of funds (borrowing or taxation).

The Group noted that to calculate such a weighted average monetary cost in a relatively precise way, detailed data would be needed on the government’s monetary costs incurred in raising tax revenue, as well as on the different rates of interest paid by the government on its various outstanding debt instruments. Also necessary would be information on the relative proportions of total government revenues accounted for by borrowed funds and tax revenues, respectively.

Although some members of the Group found the concept of the weighted average monetary cost of funds useful, the Group nevertheless concluded that trying to apply it in Article 6.1(a)/Annex IV calculations might prove not to be feasible. Of particular concern in this regard would be data availability (especially where

several levels of government might be involved), as well as practical difficulties of collecting and analysing the data.

In addition, some Group members found the concept of the weighted average monetary cost of funds incomplete, in part because it would not reflect in any way the potential indirect cost of taxation, which in their view is quite high. These Group members pointed to many governments' heavy reliance on borrowing as evidence of the extent of this cost. In the view of these Group members, if there were no cost to taxation beyond its small monetary administrative cost, governments would tax more heavily and rely less on borrowing than is in fact the case. These Group members suggested that the long-term government borrowing rate represents the most accurate measure of the potential indirect cost of taxation, in the sense of representing the amount that governments are willing to pay to avoid resorting to additional taxation.

Some Group members also felt that governments incur opportunity costs in using funds to provide subsidies, and that such costs would not be reflected if calculations were limited to monetary costs. According to this point of view, imputation of an opportunity cost in the Article 6.1(a) context would not imply holding the government to a profit-maximization standard with respect to the use of its funds. Rather, such an opportunity cost could be conceptualized as the opportunity cost to the government that arises when government resources are employed for a given purpose, thereby becoming unavailable for any of the other possible purposes to which they could have been put. In the subsidy context, a relatively straightforward example of such a cost would be that, by virtue of providing a subsidy, a government would forego the opportunity to reduce its interest expenses by retiring some of its debt (e.g., by buying back outstanding bonds). (Or, conversely, to finance a subsidy, the government would need to issue a bond, on which it would incur interest expenses.) In either case, the opportunity cost to the government could be measured as the interest expense that the government would incur on those bonds.

A somewhat overlapping concept, which was discussed extensively in the context of allocated subsidies, is time value of money. In the view of Group members favouring incorporation of time value of money where subsidies are allocated, such adjustments are purely technical in nature, allowing amounts of money at different points in time to be compared in real (rather than nominal) terms. A simple example of a time value of money question would be to calculate the amount of money at some future date that would be equivalent to a given sum today. In this case, the answer would be found by applying an appropriate interest (or "discount") rate to the present-day sum for the relevant period. The basic argument raised in favour of including the time value of money was that allocating a subsidy constitutes a movement of money through time, and that money cannot meaningfully be moved through time without taking into account its time value. That is, if a subsidy is divided into equal nominal annual increments, the real value of the last increment will be smaller than the real values of those that precede it, meaning that the total real amount of subsidization over the period would be understated. The Group recognized that, depending on the discount rate used, adjusting for time value of money also might take into account the concepts of opportunity cost to government of the funds provided as subsidies, and/or of the potential indirect cost of taxation. No consensus was reached as to whether such concepts should be reflected in Article 6.1(a)/Annex IV subsidy calculations.

There also was considerable discussion as to how time value calculations, if incorporated, should be performed. In particular, a range of views was expressed as to whether time value should figure only in calculation of the initial amount of a subsidy, or whether the related adjustments should be made to the subsidy amounts allocated to each year of an allocation period. Regarding the former approach, the methodology discussed would calculate the total amount of a grant (including its discounted lifetime financing cost) as of the date

the subsidy was provided, then allocate this amount over time. Inflation indexing would be applied to the allocated amounts to keep the original significance and value of the subsidy intact throughout the allocation period. The methodology discussed in the context of the second approach to time value calculations would “gross up” the allocated annual increments of the initial nominal subsidy amount by a discount rate set at a prevailing government bond rate. No additional adjustment for inflation would be necessary under this approach, as the discount rate already would incorporate the expected rate of inflation.

The basic argument raised against including the time value of money in subsidy allocation calculations was that such an approach would be inconsistent with the cost-to-government approach required by paragraph 1 of Annex IV. According to this view, the cost to the government of providing a subsidy that is allocated over time should be no different in year 5 than in year 1, because from the government’s point of view, the cost to the government is incurred at the time the subsidy is provided, in the amount of the initial nominal value of the subsidy, even if that value is then allocated over time. Some Group members also were of the view that, to the extent that incorporating the time value of money would be based in part on the concept of opportunity cost to government, this would be inappropriate. In particular, according to this view, introducing the concept of opportunity cost would shift the perspective of the analysis to a benefit-to-recipient approach, contrary to the Agreement’s requirement that a cost-to-government approach be used.

IV. ADJUSTMENTS FOR INFLATION AND INTEREST

The Group recognized that, even if theoretical agreement were reached on the questions of weighted average monetary cost of funds, government opportunity costs of funds, time value of money and potential indirect costs of taxation, in practical terms these costs would be difficult to measure directly. Moreover, no consensus was reached as to proxies that could be used to represent these costs in subsidy calculations. In view of this, the Group changed the framework of its analysis slightly, to focus on the effects on subsidy amounts of inflation and interest, particularly with respect to subsidies allocated over time. The Group believed that by changing focus in this way, a number of these underlying issues could be addressed at least partially, and in an administratively practicable manner. The specific question considered by the Group in this regard was the extent to which subsidy calculations might take into account the compounding effects of inflation and interest (implicit or explicit) associated with nominal subsidy amounts as they are moved through time.

The Group noted here that any interest rate in fact is comprised of two components, anticipated inflation and the “real” interest rate, i.e., the pure cost of use of the money over the relevant period. In view of this, the Group found it useful to consider these two components separately in discussing and devising its recommendations. The Group noted that the real interest rate in simple terms is the difference between the nominal interest rate and the inflation rate.

A. Inflation

Regarding inflation, a major consideration, which arises in the context of allocating subsidy amounts over time, is how to ensure a consistent basis for both the numerator (subsidy amount during the relevant period) and the denominator (value of sales during the relevant period) in calculating the ad valorem subsidization of a product. It was recognized that this question is related to how frequently and on what basis the sales denominator should vary over the course of the allocation period for a given subsidy. In this regard, as discussed in detail in Section VI.B, the Group recommends that each year of an allocation period should have its own sales denominator, i.e., the previous year’s sales.

This recommendation is relevant to whether or not the subsidy amount should be adjusted for inflation because over time, the nominal value of a firm's sales will tend to change purely due to inflation, even if the firm's scope or scale of operations does not change. Thus, as the sales denominator is revised each year during an allocation period, it automatically will incorporate the effects of inflation. If no adjustment is made to the numerator (the allocated subsidy amount) also to adjust for inflation over time a dissimilarity between the nature of the numerator and that of the denominator will be introduced. Given this, it was concluded that adjusting the numerator to account for the effects of inflation would be appropriate. Making such an adjustment would prevent inflation from eroding the real significance and value of the subsidy over the course of the allocation period.

By virtue of being indexed for inflation, the allocated subsidy amounts would progressively increase in nominal terms, although their value would remain constant in real terms. Because, as noted, the sales denominator also would incorporate an amount for inflation every year during an allocation period, the comparability of the numerator and denominator would be preserved.

B. Interest

Beyond the question of inflation, the Group discussed the extent to which allocated subsidy amounts also should be adjusted in some way to incorporate an element of "real" interest. The Group concluded that it would be appropriate to make some adjustment for real interest where subsidies are allocated over time.

This conclusion was arrived at from several different perspectives. First, as discussed above, the Group recognized that where governments borrow, an interest cost will be incurred which generally will not be able to be identified with any particular set of expenditures made from the borrowed funds. This was deemed to argue in favour of attributing some interest cost to all subsidies. The additional perspectives brought to bear on this question were opportunity cost to the government and the time value of money, as discussed. Either of these perspectives would involve imputation of some interest component to allocated subsidies, as a measure of the cost of foregone uses of the funds over the relevant period, or as a means of maintaining the subsidies' real value and significance as they move through time.

C. Methodology³⁵ (Recommendation 3)

In view of the foregoing considerations, and the difficulties encountered by the Group in reaching consensus on a single theoretical basis for a conceptually pure allocation methodology, the Group recommends that allocated subsidy amounts be adjusted fully for inflation and include as well a portion of the "real" interest rate. It is specifically recommended that this be done by attributing to allocated subsidy amounts the full rate of inflation plus one-half of the difference between the rate of inflation and the government borrowing rate on debt whose maturity most closely approximates the allocation period of the subsidy. In the Group's view, this approach provides an approximation of the previously-mentioned components of government costs of funds, as well an administratively practicable method of maintaining the real value of a subsidy over a given period. The only exception to this approach would be where the rate of interest was less than the rate of inflation (which might occur during periods of high inflation). In this circumstance, the recommended adjustment factor is the full rate of inflation, unadjusted for any interest component.

³⁵ As noted above, this recommended approach applies to allocated subsidies other than loans.

The Group further recommends that, as a general principle, the adjustment factor should be derived from the interest and inflation rates prevailing at the time the subsidy is received, and that this factor be kept constant throughout the allocation period. Thus, for every year of an allocation period, excluding the year of receipt, the allocated subsidy amount would reflect an amount for the compounded adjustment factor.³⁶ The Group recognizes that keeping the adjustment factor fixed over the allocation period may not be appropriate during periods of significant changes in inflation and interest rates. In such cases, derivation of the adjustment factor on an annual basis over the course of the allocation period may be more appropriate.

The following example illustrates how the adjustment factor would be determined. If the government's borrowing rate is 10 per cent and the rate of inflation is 6 per cent at the time the subsidy is received, the adjustment factor would be 8 per cent: 6 per cent (inflation rate) plus 2 per cent, calculated as one-half of the four-percentage-point difference between 10 per cent (government borrowing rate) and 6 per cent (inflation rate). In practice, this adjustment factor can be calculated as the arithmetic average of the inflation rate and the government borrowing rate.

The allocation methodology recommended by the Group in this section is made exclusively in the context of Article 6.1(a) and Annex IV, and as such is not intended to affect the allocation methodologies followed by individual countries employing countervailing measures. Also by virtue of this context, this recommendation is limited to the cost-to-government perspective for measuring a subsidy, and thus is intended to be relevant only with respect to that perspective.

D. Data Sources for Government Borrowing Rates (Recommendation 4)

In the contexts of both the adjustment factor just discussed, and the comparator interest rates for determining the cost to government of subsidies in the form of loans (see Section VIII.B), the Group recognized that some means of identifying government borrowing rates would be necessary. In this regard, the Group concluded that the yield to maturity on government securities (new issues or those trading in secondary markets) represents the most accurate measure of the rate of interest paid by a government. By identifying a bond or other government debt instrument with the appropriate term to maturity, it would be possible to match the allocation periods of the subsidies and the maturities of the government debt instruments, as foreseen in the Group's methodological recommendations.

A variety of sources for information on the secondary market for government securities were identified. Particularly noted for being available on a fully up-to-date basis, and for being apparently comprehensive in their coverage of issuing countries, markets and currencies, are the on-line services of Reuters and Bloomberg. Moody's International Manual and the IMF's Government Finance Statistical Yearbook were identified as additional sources of interest rates on government bonds.

³⁶ The Group discussed the issue of whether the adjustment factor should be applied to the year of receipt. Due to the differences with respect to the conceptual bases for the adjustment factor, the Group had difficulty reaching a consensus. In the end, the Group decided that the adjustment factor should not be applied to the subsidy amount allocated to the year of receipt.

European Commission (1998) *Guidelines for the calculation of the amount of subsidy in countervailing duty investigations*³⁷

And Government of India (2006) *Customs Tariff Rules Amendment*

Investigation period for subsidy – calculation of expense versus allocation

The amount of subsidy should be established during an investigation period, which should normally be the most recent financial year of the beneficiary enterprise. Although any other period of six months prior to initiation may be used, it is preferable to use the most recent financial year, since this will enable all appropriate data to be verified on the basis of audited accounts.

As many subsidies have effects for a number of years, subsidies granted before the investigation period should also be investigated in order to determine what portion of such subsidy is attributable to the investigation period.

- (i) If the subsidy is granted on a per unit basis, for example, an export rebate granted per unit of product, the per unit calculation normally consists of taking the weighted-average value of the rebate over the investigation period;
- (ii) Other kinds of subsidy are not readily expressed on a per unit basis, but involve a global sum of money which has to be allocated to each unit of product as appropriate. Two exercises may have to be carried out, in this respect:
 - Attribution to the investigation period of a portion of those subsidies granted before the investigation period but whose effects extend over a number of years.
 - Allocation of the subsidy amount attributed to the investigation period per unit of the like product. In this case, the appropriate denominator for such allocation has to be selected.

(a) Attribution of a subsidy amount to the investigation period

- (i) Many types of subsidy, e.g., tax incentives and preferential loans are recurring and the effect is felt immediately after granting. Thus, the amount granted to the beneficiary can be expensed in the investigation period. The expensed amount should normally be increased by the annual commercial interest rate, to reflect the full benefit to the recipient, on the assumption that the beneficiary would have had to borrow the money at the beginning of the period and repay it at the end.
- (ii) For non-recurring subsidies, which can be linked to the acquisition of fixed assets, the total value of the subsidy should be spread over the normal life of the assets. Therefore the amount of subsidy from, for example, a grant (for which it is assumed that it is used by the beneficiary to improve its competitiveness in the long term, and thus to purchase product assets of one kind or another), can be spread over the normal period used in the industry involved for the depreciation of assets. This should normally be done using the straight-line-method. For example, if the normal depreciation period was five years, 20% of the value of the grant should be allocated to the investigation period.

³⁷ © European Union, <http://eur-lex.europa.eu>. Only European Union legislation printed in the paper edition of the *Official Journal of the European Union* is deemed authentic.

The approach of allocating over time means that non-recurring subsidies granted several years before the investigation period may still be countervailed provided that they still have an effect during the investigation period.

This kind of allocation is equivalent to a series of annual grants, each having an equal amount. In order to determine the benefit to the recipient, the appropriate annual commercial interest rate should be added to each grant, to reflect the benefit of not having to borrow the money on the open market. In addition, in order to reflect the full benefit to the recipient of having a lump sum of money at its disposal from the beginning of the allocation period, the amount of subsidy should be increased by the average amount of interest which the recipient would expect to earn on the non-depreciated amount of total grant over the whole period of allocation.

- (iii) As an exception to (ii), non-recurring subsidies which amount to less than 1% ad valorem may normally be considered to be expensed, even if they are linked to the purchase of fixed assets.
- (iv) In the case of recurring subsidies linked to the acquisition of fixed assets, e.g., import duty exemptions on machinery, which date back to before the investigation period, the benefits accruing from previous years within the depreciation period should be taken into account and the appropriate amount attributed to the investigation period.
- (v) In addition, recurring subsidies granted in large, concentrated amounts prior to the investigation period, may in certain circumstances be allocated over time if it is determined that they are likely to be linked to the purchase of fixed assets and still confer a benefit during the investigation period.
- (vi) In the case of subsidies expensed as in paragraphs (i) and (iii) no subsidies granted before the investigation period should be taken into account. For subsidies allocated over time, as in (ii), (iv), and (v), subsidies granted prior to the investigation period must be considered.

OECD (2009) *The PSE manual*

5.1.5. Attribution of budgetary allocations to calendar years

Support estimates are made on a calendar-year basis and, as such, budgetary expenditures should be allocated to calendar years. This may not be straightforward, as some support programmes have cycles that correspond to crop (agricultural) years, while the budgetary funding is based on fiscal years. These calendar, crop and fiscal years may not fully coincide, i.e., they may cover different time laps. The principle is to allocate a payment of a particular crop year to the calendar year to which the production of that crop year is attributed. For example, suppose that a crop year t starts in calendar year t , and the crop is harvested in that same calendar year t . However, payments with respect to crop year t are made on the basis of the fiscal year and may fall mostly into calendar year $t+1$. In this case, payments made in calendar year $t+1$ (regardless of fiscal year) should be allocated to calendar year t because the crop for which the payment was made is attributed to that calendar year. With “decoupled” payments, the rule is extended to cover payments with respect to land in agricultural use at given dates or for environmental actions taken over specific periods. For example, if a payment is based on land in agricultural use or animals held at a given date, it would be assigned to the calendar year in which this date occurs.

**United States Federal Government (2010) *Federal Regulations: Customs Duties*
*Part 351 – Antidumping and countervailing duties***

§ 351.524 Allocation of benefit to a particular time period

Unless otherwise specified in §§351.504–351.523, the Secretary will allocate benefits to a particular time period in accordance with this section.

(a) Recurring benefits.

The Secretary will allocate (expense) a recurring benefit to the year in which the benefit is received.

(b) Non-recurring benefits—

- (1) In general. The Secretary will normally allocate a non-recurring benefit to a firm over the number of years corresponding to the average useful life (“AUL”) of renewable physical assets as defined in paragraph (d)(2) of this section.
- (2) Exception. The Secretary will normally allocate (expense) non-recurring benefits provided under a particular subsidy program to the year in which the benefits are received if the total amount approved under the subsidy program is less than 0.5 per cent of relevant sales (e.g., total sales, export sales, the sales of a particular product, or the sales to a particular market) of the firm in question during the year in which the subsidy was approved.

(c) “Recurring” versus “non-recurring” benefits—

- (1) Non-binding illustrative lists of recurring and non-recurring benefits. The Secretary normally will treat the following types of subsidies as providing recurring benefits: Direct tax exemptions and deductions; exemptions and excessive rebates of indirect taxes or import duties; provision of goods and services for less than adequate remuneration; price support payments; discounts on electricity, water, and other utilities; freight subsidies; export promotion assistance; early retirement payments; worker assistance; worker training; wage subsidies; and upstream subsidies. The Secretary normally will treat the following types of subsidies as providing non-recurring benefits: equity infusions, grants, plant closure assistance, debt forgiveness, coverage for operating losses, debt-to-equity conversions, provision of non-general infrastructure, and provision of plant and equipment.
- (2) The test for determining whether a benefit is recurring or non-recurring. If a subsidy is not on the illustrative lists, or is not addressed elsewhere in these regulations, or if a party claims that a subsidy on the recurring list should be treated as non-recurring or a subsidy on the non-recurring list should be treated as recurring, the Secretary will consider the following criteria in determining whether the benefits from the subsidy should be considered recurring or non-recurring:
 - (i) Whether the subsidy is exceptional in the sense that the recipient cannot expect to receive additional subsidies under the same program on an ongoing basis from year to year;
 - (ii) Whether the subsidy required or received the government’s express authorization or approval (i.e., receipt of benefits is not automatic), or
 - (iii) Whether the subsidy was provided for, or tied to, the capital structure or capital assets of the firm.

(d) Process for allocating non-recurring benefits over time.—

- (1) In general. For purposes of allocating a non-recurring benefit over time and determining the annual benefit amount that should be assigned to a particular year, the Secretary will use the following formula:

$$A_k = \frac{\frac{y}{n} + \left[y - \left(\frac{y}{n} \right) (k - 1) \right] d}{1 + d}$$

Where:

- A_k = the amount of the benefit allocated to year k ,
- y = the face value of the subsidy,
- n = the AUL (see paragraph (d)(2) of this section),
- d = the discount rate (see paragraph (d)(3) of this section), and
- k = the year of allocation, where the year of receipt = 1 and $1 \leq k \leq n$.

(2) AUL

- (i) In general. The Secretary will presume the allocation period for non-recurring subsidies to be the AUL of renewable physical assets for the industry concerned as listed in the Internal Revenue Service's ("IRS") 1977 Class Life Asset Depreciation Range System (Rev. Proc. 77-10, 1977-1, C.B. 548 (RR-38)), as updated by the Department of Treasury. The presumption will apply unless a party claims and establishes that the IRS tables do not reasonably reflect the company-specific AUL or the country-wide AUL for the industry under investigation, subject to the requirement, in paragraph (d)(2)(ii) of this section, that the difference between the company-specific AUL or country-wide AUL for the industry under investigation and the AUL in the IRS tables is significant. If this is the case, the Secretary will use company-specific or country-wide AULs to allocate non-recurring benefits over time (see paragraph (d)(2)(iii) of this section).
- (ii) Definition of "significant." For purposes of this paragraph (d), significant means that a party has demonstrated that the company-specific AUL or country-wide AUL for the industry differs from AUL in the IRS tables by one year or more.
- (iii) Calculation of a company-specific or country-wide AUL. A calculation of a company-specific AUL will not be accepted by the Secretary unless it satisfies the following requirements: the company must base its depreciation on an estimate of the actual useful lives of assets and it must use straight-line depreciation or demonstrate that its calculation is not distorted through irregular or uneven additions to the pool of fixed assets. A company-specific AUL is calculated by dividing the aggregate of the annual average gross book values of the firm's depreciable productive fixed assets by the firm's aggregated annual charge to accumulated depreciation, for a period considered appropriate by the Secretary, subject to appropriate normalizing adjustments. A country-wide AUL for the industry under investigation will not be accepted by

the Secretary unless the respondent government demonstrates that it has a system in place to calculate AULs for its industries, and that this system provides a reliable representation of AUL.

- (iv) Exception. Under certain extraordinary circumstances, the Secretary may consider whether an allocation period other than AUL is appropriate or whether the benefit stream begins at a date other than the date the subsidy was bestowed.
- (3) Selection of a discount rate.
- (i) In general. The Secretary will select a discount rate based upon data for the year in which the government agreed to provide the subsidy. The Secretary will use as a discount rate the following, in order of preference:
 - (A) The cost of long-term, fixed-rate loans of the firm in question, excluding any loans that the Secretary has determined to be countervailable subsidies;
 - (B) The average cost of long-term, fixed-rate loans in the country in question; or
 - (C) A rate that the Secretary considers to be most appropriate.
 - (ii) Exception for uncreditworthy firms. In the case of a firm considered by the Secretary to be uncreditworthy (see §351.505(a)(4)), the Secretary will use as a discount rate the interest rate described in §351.505(a)(3)(iii).

CHAPTER 12. DENOMINATOR FOR ASSESSING THE RELATIVE LEVEL OF SUBSIDY

WTO (1998) Report by the Informal Group of Experts to the Committee on Subsidies and Countervailing Measures

VI. SALES DENOMINATOR (Recommendation 6)

A. Period on which Sales Denominator is Based (Recommendation 6, Parts A-C)

The issues involved in identifying the appropriate sales denominator for calculations of ad valorem subsidization of a product, within the confines established by Annex IV, were discussed extensively. At the outset, the guidance in paragraphs 2 and 3 of Annex IV on this issue was acknowledged. In particular, these paragraphs provide that the relevant sales data shall be those for the most recent 12-month period preceding the period in which the subsidy is granted. The general view was that this means that, except as otherwise explicitly provided, a lag will always exist between the period covered by the numerator and that covered by the denominator (i.e., current-year subsidies will be divided by the previous year's sales).

Two special cases in the context of this general rule were identified. The first occurs in the case of an inflationary economy country, where sales in the preceding calendar year are to be indexed for the inflation experienced during the most recent 12-month period. That is, while there is a lag in the basic data, the data themselves are in a sense updated through the application of the inflation index.

The second special case pertains to the treatment of tax-related subsidies, as set forth in Footnote 64 to Annex IV. This footnote states that for tax-related subsidies, the value of the product is to be “the total value of the recipient firm’s sales in the fiscal year in which the tax related measure was earned” (emphasis added). This language indicates that a single period should be used in identifying the numerator and the denominator, i.e., the period in which the subsidy was earned, which would mean that no lag would be present. It was noted in this context that the “earning” of a tax subsidy normally occurs during the fiscal year preceding the fiscal year in which the related tax return is filed. Thus, tax revenue normally will be foregone by the granting government in the year after the tax subsidy is earned. Taking into account the language of Footnote 64, the Group recommends in calculations of ad valorem subsidization from tax subsidies that the numerator should be the amount of the tax subsidy earned in the fiscal year preceding the fiscal year in which the relevant tax return was filed, and that the denominator should be the company's sales in that same fiscal year, i.e., the one preceding the fiscal year in which the tax return was filed.

The Group further noted that the reference, in paragraphs 2 and 3 of Annex IV to “the most recent 12-month period, for which sales data is available, preceding the period in which the subsidy is granted” was somewhat ambiguous. In particular, the period referred to might be either the recipient firm’s most recent accounting year, or alternatively, the actual 12 months immediately prior to the month in which the subsidy was granted (whether or not this period coincided with the recipient's accounting year). The Group recommends, because of the possibility of year-end adjustments for discounts, rebates, returns, etc., and general ease of obtaining data, that the sales data for the most recent accounting year be used. Under this approach, if a subsidy were granted in April, and the firm’s accounting year was the calendar year, the sales denominator would be the firm’s sales during the preceding calendar year. In addition, the Group recommends that the sales data used be net rather than gross sales.

B. Variability (Recommendation 6, Part D)

A further question discussed regarding the sales denominator was whether and when the sales denominator should vary in the calculation of the ad valorem rate of subsidization from allocated subsidies. Several possibilities were discussed. One approach would be to establish a single sales denominator for each subsidy the level of sales during the year preceding the period in which the subsidy was granted and carry that denominator forward for that subsidy for the entire period over which the subsidy was allocated. Thus, if the aggregate amount of subsidization in the year being reviewed consisted of allocated amounts of three subsidies, each of which had been granted in a different, prior year, there would be three sales denominators (one for each subsidy), which would be used to determine a separate ad valorem rate of subsidization for each subsidy for the year of review. These ad valorem percentages, each of which had been calculated over a different year's sales level, then would be added together to determine the overall rate of subsidization. The fact that keeping the sales denominator fixed would tend to overestimate the actual rate of subsidization during periods of expanding sales, while tending to underestimate this rate during periods of declining sales, was identified as a drawback, while the certainty of establishing a single ad valorem rate of subsidization for each allocated subsidy was identified as an advantage.

A second approach would be to apply a single sales denominator to all subsidies granted in or allocated to a given year. This denominator would be the level of sales during the year preceding the most recent granting of a subsidy. Thus, during the period of allocation of a subsidy, the sales denominator would remain fixed at the level of sales during the year preceding the first subsidy, until a second subsidy was granted, at which point the sales denominator applied to both subsidies would shift to the level of sales during the year preceding the granting of the second subsidy, and so forth. This approach was viewed as a possible means to establish some degree of predictability as to the rate of subsidization that would arise from each subsidy, while at the same time allowing for changes in the level of sales over time to be at least partially incorporated. On the other hand, this approach would suffer from the same potential for overstatement or understatement of the ad valorem subsidization as the first approach.

Because of the limitations of the first two approaches, and because it is viewed as more closely reflecting reality, the Group recommends a third approach, under which each year of an allocation period would have its own sales denominator, i.e., the previous year's sales level. Thus, if a subsidy granted in 1996 were allocated over five years, the sales denominator used to determine the 1996 rate of subsidization would be 1995 sales, the denominator for the 1997 rate of subsidization would be 1996 sales, etc. This approach suggests that where allocated subsidies were involved, the word "granted" in paragraph 2 of Annex IV would be taken to mean "allocated". In other words, the denominator would be the recipient's sales during the most recent 12-month period preceding the period to which the relevant portion of the subsidy was allocated.

A major consideration in making this recommendation is that facts, in particular, companies' sales levels, change over time. For example, a company's scope of operations may expand or contract, or inflation may change the value of sales even where the volume remains constant. Varying the sales denominator each year was deemed the best way to ensure that the level of subsidization was calculated on an up-to-date basis for each year of an allocation period. In this connection, the Group also noted that adjusting the sales denominator each year is consistent with its recommendation to adjust allocated subsidy amounts for inflation and interest each year. On balance, these positive elements were deemed to outweigh any decrease in predictability that might result from such an approach.

E. Sales Denominators for Tied and Untied Subsidies, and Aggregation of ad valorem Subsidization from Different Kinds of Subsidies (Recommendation 6, Part G)

A further question pertains to identifying the correct sales denominator where both tied and untied subsidies are received. In particular, paragraph 6 of Annex IV's requirement that "subsidies given under different programmes and by different authorities in the territory of a Member shall be aggregated" raises the question generally of how such aggregation should be done when calculating ad valorem subsidization.

The Group recognizes that, as required by Annex IV, where a subsidy is tied to a particular type of product, the subsidy received should be divided by sales of that product. The Group further recognizes that, as also required by Annex IV, where a subsidy is untied, the subsidy amount should be divided by the company's total sales. In this connection, the Group recommends that where a mixture of tied and untied subsidies is received, the respective ad valorem subsidy calculations should be performed separately (each using the appropriate sales denominator), and the resulting ad valorem percentages added together to arrive at the total ad valorem subsidization of the product.

For example, assume that an Article 6.1(a) case has begun with respect to milk. If a company produces steel and milk, and receives a tied subsidy to produce milk, the subsidy amount should be divided by the recipient company's sales of milk to determine the ad valorem subsidization from that subsidy. If the company also receives an untied subsidy, this subsidy amount should be divided by the firm's total sales of steel and milk. The two resulting ad valorem percentages then should be added together to arrive at the total ad valorem subsidization of milk.

Another question pertaining to the sales denominator is whether a single sales denominator should be used with respect to subsidies of different scopes, for example, export versus domestic subsidies, or subsidies for sales to particular markets. (In this context, it is recalled that an export subsidy might be incorporated into an Article 6.1(a) allegation, rather than separately being used as the basis for an allegation of prohibited subsidy under the Article 4 procedures. See Section I.B, above.) The Group considered but did not reach a consensus on whether export subsidies should be divided by export sales or by total sales, nor on whether subsidies tied to particular markets should be divided by sales to that particular market or by total sales.

**WTO (1999) Informal Group of Experts on calculation issues related to Annex IV
of the Agreement on Subsidies and Countervailing Measures**

Low-volume, high-value products

The Group discussed the problem, raised by Canada in document G/SCM/W/416, of the sales denominator for low-volume, high-value products. Two possible examples mentioned were ocean liners and offshore oil platforms. For such products, a "sale" might be considered to have taken place at the time the contract was signed between producer and purchaser, although the product might physically be delivered only several years thereafter. Assuming that subsidies were involved in any such sale, application of the rule on the sales denominator in paragraphs 2 and 3 of Annex IV might lead to anomalous results. That is, there might be no "sales" during the most recent 12-month period preceding the granting of the subsidies, depending on the timing of the subsidies in relation to the timing of the sale, depending on whether the subsidies were "tied" to the product or not, and depending on the scope of the recipient firm's operations. Thus, there might be situations in which no clear basis existed for the calculation of ad valorem subsidization, even where subsidies had been received.

The Group acknowledged that this was a potential problem that should be identified in its report, although in practice it might be difficult to clearly identify types of products and firms with respect to which this situation could arise. The Group further concluded that the language in paragraphs 2 and 3 of Annex IV might limit the Group's ability to make any sort of recommendation to address this situation.

Australian Productivity Commission (2002) *Trade and Assistance Review 2001-02 Methodological Annex*³⁸

1.3. Assistance measures

The Commission has adopted several measures to help quantify and compare the diverse assistance arrangements which affect businesses in the different sectors of the economy, in particular in the agriculture and manufacturing sectors.

In brief, the basic measures are:

- the gross subsidy equivalent (GSE), which is the dollar value of assistance to an industry's or activity's outputs;
- the tax equivalent on materials (TEM), which is the dollar value of assistance to an industry's or activity's inputs—which penalises the industry/activity by raising its costs; and
- the net subsidy equivalent (NSE), which is a measure of the dollar value of net assistance to an industry or activity's value added (and is equal to the GSE plus any assistance to value-adding factors, less the TEM).

Each of these measures is accompanied by a 'rate of assistance' measure, namely:

- the nominal rate of assistance on output is the GSE divided by the industry's value of production (measured in unassisted prices);
- the nominal rate of assistance on inputs is the TEM divided by the industry's value of materials (measured in unassisted prices); and
- the effective rate of assistance (ERA) is measured by the NSE divided by the industry's net output (measured in unassisted prices) or, more formally, its 'unassisted value added'.

These and other measures used by the Commission are explained in more detail in section 3.

3.1. Combined GSE, TEM and NSE estimates

The Commission first separates its dollar value estimates of assistance from budgetary measures, tariffs and agricultural pricing and regulatory arrangements into three categories:

- output assistance;
- input assistance; and
- assistance to value-adding factors.

³⁸ © Commonwealth of Australia, reproduced by permission

These are aggregated to provide combined estimates of output assistance (the GSE), input assistance (the TEM) and net assistance (the NSE) for each industry grouping. The Commission also adjusts these items to reflect overlap in its different estimates—in particular, the inclusion of tariff concessions in both its tariff and budgetary assistance estimates.

Because the Commission's budgetary assistance estimates are calculated in current dollars while estimates of tariff assistance are based on ABS Input-Output data for 1996-97, the latter are revalued to current dollars using ABS data on Gross Value Added at current prices. Periodic revisions to ABS data can affect the Commission's assistance estimates, although such revisions are not expected to significantly affect year-to-year comparisons.

3.2. Calculation of nominal and effective rates of assistance

The combined GSEs, TEMs and NSEs are then used, together with ABS input-output data, to estimate nominal and effective rates of assistance for each industry grouping.

The nominal rate of assistance on outputs is calculated as output assistance, or the GSE, divided by the 'unassisted' value of output (UVO). The UVO is equal to the 'assisted' value of output (AVO) less the GSE. Some forms of assistance (such as tariffs, import quotas and, in some years, domestic pricing arrangements) increase producers' returns by raising prices (called the price distortion) while other forms of assistance (such as production bounties) raise producers' returns without increasing prices paid by user industries. The nominal rate of assistance on outputs, therefore, measures the extent to which consumers pay higher prices and taxpayers pay subsidies and bounties in support of local output.

The nominal rate of assistance on 'materials' (NRM) is a measure of the extent to which prices paid for materials (intermediate inputs) used in the production process change due to government intervention. For example, tariffs on intermediate inputs penalise user industries by raising prices, while consumption subsidies benefit user industries through lowering prices. Unlike the nominal rate of assistance on outputs, the nominal rate on inputs excludes those forms of assistance (e.g., production bounties) which benefit the production of intermediate inputs without affecting prices paid by user industries. The NRM is defined as input assistance, or the TEM, divided by the 'unassisted' value of materials—which is derived in a similar manner to the AVO.

The effective rate of assistance (ERA) is a measure of net industry assistance. It measures net assistance to an activity's value-adding activities, by taking into account not only output assistance and direct assistance to value-adding factors (e.g., subsidised interest charges and income tax concessions), but also the penalties (e.g., from tariffs and excise taxes) and benefits (e.g., from input subsidies) of government intervention on inputs. The ERA is calculated as the NSE divided by the UVA, expressed as a percentage.

European Commission (1998) *Guidelines for the calculation of the amount of subsidy in countervailing duty investigations*³⁹

and Government of India (2006) *Customs Tariff Rules Amendment*

Calculation of subsidy per unit/ad valorem

[EC: Regulation 2026/97, based as it is on the WTO Subsidies Agreement, assumes that an important effect of a subsidy is always to reduce a firm's costs and the methodology adopted to calculate CVD's therefore reflects this. The objective of the calculation is to arrive at the amount of subsidy per unit of production (Article 7(1) of Regulation 2026/97) during the investigation period (see section F). In the case of consumer products, such as television sets, the appropriate unit would be each individual item. If bulk products, such as fertilisers or chemicals, are involved, it would be appropriate to calculate the subsidy, say, per tonne, or other appropriate unit of measurement. Therefore, the simplest type of subsidy to calculate is that granted on a per unit basis (example 1).

The per unit subsidy can be converted into an ad valorem rate at the Community frontier by expressing the per unit subsidy as a percentage of the average cif. (duty unpaid) unit import price.

In this way it can be established whether the subsidy amount is de minimis, since this is expressed ad valorem in Article 14(5) of Regulation 2026/97 (1% for imports from developed countries; 2% to 3% for developing countries). In certain circumstances, it may also be considered to be appropriate to express the countervailing duty on an ad valorem basis.]

[India: The calculation of the benefit shall reflect the amount of subsidy found to exist during the investigation period and not simply the face value of the amount at the time it is transferred to the recipient or foregone by the government. Thus, the face value of the amount of the subsidy should be transformed into the value prevailing during the investigation period through the application of the normal commercial interest rate.

The objective of the calculation should be to arrive at the amount of subsidy per unit of production during the investigation period. In the case of consumer products, such as television sets, the appropriate unit would be each individual item. If bulk products, such as fertilizers or chemicals, are involved, it would be appropriate to calculate the subsidy, that is to say, per tonne, or other appropriate unit of measurement. The per unit subsidy can be converted into an ad valorem rate by expressing the per unit subsidy as a percentage of export price. This may be used to establish whether the subsidy amount is de minimis, since this is expressed ad valorem (1% for imports from developed countries; 2% for developing countries). In certain circumstances, it may also be considered to be appropriate to express the countervailing duty on an ad valorem basis.]

Appropriate denominator for allocation of subsidy amount

Once the subsidy amount to be attributed to the investigation period has been established, the per unit amount is arrived at by allocating it over the appropriate denominator, consisting of the volume of sales or exports of a product concerned.

- (i) As regards export subsidies [EC: (Article 3(4)(a) of Regulation 2026/97)] the appropriate denominator for allocation is the export volume during the investigation period, since such subsidies benefit only exports [EC: (see examples 2 and 3)].

³⁹ © European Union, <http://eur-lex.europa.eu>. Only European Union legislation printed in the paper edition of the *Official Journal of the European Union* is deemed authentic.

- (ii) For non-export subsidies the total sales (domestic plus export) should normally be used as the denominator, since such subsidies benefit both domestic and export sales [EC: (see example 4)].
- (iii) If the benefit of a subsidy is limited to a particular product, the denominator should reflect only sales of that product. If this is not the case, the denominator should be the recipient's total sales.

FAO (2004) *Guide for identifying, assessing and reporting on subsidies in the Fisheries Sector*

8.1. Relative importance of costs and values

The estimates of fisheries subsidies that we made above represent important information but to better assess their significance the values need to be compared with something. The industry value of a subsidy could, for example, be put in relation to the total sales value for the part of the industry it affects, or the total government expenditure on fisheries subsidies could be expressed as a percentage of the total added value created by the fisheries sector⁴⁰ and compared with similar ratios for other sectors.

The ratios that should be calculated depend of course on the objective of the analysis, e.g., should the fisheries subsidies be compared with other sectors of the economy or with fisheries in other countries, or should the development—increases or decreases in different categories of fisheries subsidies—over time be measured? Some examples of ratios that could be calculated are listed below. The ratios can either be calculated for the fisheries sector as a whole or for different subsectors or groups of firms, depending on the scope and objective of our study.

- Government expenses (revenues)
 - Government costs (revenues) divided by the number of employees in the fisheries sector, selected subsectors or groups of operators.
 - Government costs (revenues) divided by the value added created by the sector or subsector.
 - Government costs (revenues) divided by the value of production (turnover) of fisheries industry or part of it.
 - Government costs (revenues) divided by ex-vessel value of landed fish.
- Change in industry profits
 - The industry value of the subsidies divided by the total profit/loss (before or after tax) of the fisheries industry, selected subsectors or groups of operators.
 - The industry value divided by the ex-vessel value of landed fish.
 - The industry value (change in profits) divided by the value added created by the fisheries sector, selected subsectors or groups of operators.

⁴⁰ The added value created by the fisheries sector is often referred to as the GDP of the fisheries sector.

If we want to make international analyses, we should make sure that the ratios we calculate are relevant for cross-border comparisons and that data we use are compatible. The different conditions—natural, economic and social—under which the fisheries industry operates in different countries influence the relative values of fisheries subsidies and these may not be immediately comparable. It should also be recognized that the institutional arrangements and the resources available to the public sector vary between different countries and this aspect needs to be taken into consideration when making international comparisons.

8.2. Financial ratios

In addition to the more general ratios discussed above, we may also want to make further use of the results of the costs and earnings analysis. Based on the calculations made on the income statements—discussed in chapter 7 above—we can calculate financial ratios and in this way evaluate the economic performance with and without subsidies. Depending on our sample size and the number of subsectors that we have included in the costs and earnings analysis, average ratios for different parts of the industry can be estimated and assessed. Some of the ratios to calculate could include:

- Gross margin
- Profit margin (return on sales)
- Return on investments

It would also be interesting to examine the change in financial strength and solvency ratios but as the longer-term impact of the subsidies on the firm is not known, this would be difficult to do in any reliable way. The financial strength and solvency ratios are based on information from the balance sheet and in order to make any meaningful assessment, the balance sheet would need to be adjusted for subsidies in the same way as the profit and loss account. The latter is a shorter-term reflection of the business and it is easier to make adjustments with an acceptable level of reliability. The balance sheet is the long-term account of the business's transactions. To adjust the balance sheet for the effects of subsidies would involve, in addition to analysing the history of the direct effects of subsidies, speculations with regard to overall investment and business decisions triggered by the indirect effects of subsidies in the past. In fact, in line with this discussion, also the last profitability ratio suggested above, i.e., return on investments, could be questioned with regard to its reliability as it uses total assets—a balance sheet item—as the denominator.

BOX 23

Costs and earnings analysis - An example

Within the framework of the fisheries subsidies study in Seidisbus, a costs and earnings analysis was carried out for the shrimp fishery. In 2000, there were six companies operating a total of eight boats in this fishery. Income statements were obtained from four of the companies, covering six of the boats. It was assumed that the remaining two companies operated along similar lines to those interviewed and the data obtained was extrapolated to establish a profit and loss account for the shrimp fishery as a whole. All eight vessels in the fishery were of the same type and size although of very different age; the newest had just been taken into service while the oldest had been operating for nearly 25 years. The average age of the fleet was estimated at 8 years. The cost of a new vessel was estimated to be about US\$ 10 000 000 based on information from the national ship wharf. However, there is also an important second-hand market in the region and the average value of the vessels in the fleet was estimated to be 6 000 000 with a life span of 15 years. Accordingly, the total current value of the fleet is US\$ 48 000 000. The commercial interest usually charged for this type of investment was 15% and the loan period would generally be the same as the economic life span of the investment, i.e., 15 years in this case, with payments due at the end of each year.

With regard to subsidies, many of the examples quoted in chapter 6—and summarized in Figure 9—were relevant to the shrimp fishery in Seidisbus. The exceptions were the investment grant programme (Box 6) and the restructuring of the shrimp hatchery industry (Box 8) which were only relevant to the aquaculture subsector, the subsidy involved in the state-ownership of the ship wharf (Box 8), the provision of landing sites along the coast for the artisanal fishers (Box 15), the membership in the regional fisheries committee dealing with the management of small pelagic species (Box 19) and the extra costs for new TEDs which were already being used by the fleet (Box 18).

The income guarantee scheme (Category 1 subsidy) benefited the fishers working onboard the shrimp trawlers. However, there was no information on the amounts having been paid out to individual fishers and it was hence assumed that the scheme had benefited fishers in the semi-industrial and the shrimp fishery fleets equally: 120 (employees shrimp fleet) divided by 370 (total employees semi-industrial and shrimp fleets) multiplied by 450 000 (industry value of subsidy) = 145 900.

All six companies targeted the export market and had their own marketing and distribution structure. Shrimp exports represented 90% of the total value of fish exports in 2000. Four of the companies had participated in the 2000/2001 trade fair organized by the Export Council (Category 2 subsidy):

90% of 75 000 (fisheries' share of Export Council budget) plus 4/30 (share of shrimp industry participants in trade fair) of 12 000 (fisheries' share of trade fair costs) = 69 100.



For the fuel tax rebate (Category 2 subsidy), there were records of the recipients of the reimbursements. The shrimp fishery fleets had received a total of 550 000 under the scheme.

FAO, and in particular the marine fisheries management project (Category 2 subsidy), was important to the shrimp fishery, probably more so than to many other parts of the sector. It was believed that it would be fair to assign 75% of the industry value to the shrimp fleet: 75% of 201 750 = 151 300.

The same share, 75%, was attributed to the shrimp fishery of the total fisheries management subsidy (Category 3): 75% of 2 000 000 = 1 500 000. The free access subsidy (Category 4) affected the shrimp fishery proportionally to the value of their landings, i.e., 4% of 35 million = 1 400 000.

AGGREGATED PROFIT AND LOSS ACCOUNT - SHRIMP FLEET (US\$) 2000

Item	Actual: adjusted depreciation and interest costs	Name of subsidies	Amount of subsidy	Account less subsidies
REVENUES				
Sales revenues	38 000 000	FAO	151 300	36 279 600
		Export Council	69 100	
		Management	1 500 000	
OPERATING COSTS				
Running (variable) costs	17 000 000	Fuel rebate	550 000	17 550 000
Labour costs	5 000 000	Income guarantee	145 900	5 145 900
Fixed costs	3 000 000	Free access	1 400 000	4 400 000
Gross cash flow	13 000 000			9 183 700
CAPITAL AND FINANCIAL EXPENSES				
Depreciation	3 200 000			3 200 000
Interest costs	500 000			500 000
Profit or loss before tax/total subsidies	9 300 000		3 816 300	5 483 700
TAX				
Corporate income tax (15%)	1 395 000			822 555
Profit or loss after tax	7 905 000			4 661 145

BOX 24

Ratios - An example

In Seidisbus, the following ratios are calculated in the fisheries subsidies study:

1. Government cost (all subsidies) divided by the total number of employees in the fisheries sector:
 $7\,473\,750$ (from Figure 9)/ $16\,580$ (from Box 22) = US\$ 451 per employee.
2. Government cost (only Categories 1 and 2 subsidies) divided by the total number of employees in the fisheries sector: $2\,418\,750$ (from Figure 9: $7\,473\,750 - 35\,000 - 2\,000\,000 - 2\,900\,000$)/ $16\,580$ = US\$ 153 per employee.
3. Government cost (excluding subsidies for aquaculture) divided by the ex-vessel value of catches: $4\,583\,750$ (from Figure 9: $7\,473\,750 - 770\,000 - 120\,000$)/ $75\,000\,000$ (from Box 22) = 9%.
4. Industry value (all subsidies) divided by the ex-vessel value of catches and value of aquaculture production: $9\,648\,750$ (from Figure 9)/ $103\,000\,000$ ($75\,000\,000 + 28\,000\,000$ from Box 22) = 9%.
5. Industry value (subsidies only for shrimp fishery) divided by profits before tax of the shrimp fleet: $3\,816\,300$ (from Box 23)/ $9\,300\,000$ (from Box 23) = 41%.

BOX 25

Financial ratios - An example

Using the information for the shrimp fishery in Seidisbus (Box 23), the following financial ratios can be estimated:

1. Return on sales
 - Actual account: $9\,800\,000$ (net income before interest expenses: $9\,300\,000 + 500\,000$) divided by $38\,000\,000$ (sales) = 26%.
 - Account less subsidies: $5\,983\,700$ (net income before interest expenses: $5\,483\,700 + 500\,000$)/ $37\,779\,600$ (sales) = 16%.
2. Return on investment
 - Actual account: $9\,800\,000$ (net income before interest expenses: $9\,300\,000 + 500\,000$) divided by $48\,000\,000$ (book value of total assets assumed to equal current replacement value of vessels) = 20%.
 - Account less subsidies: $5\,983\,700$ (net income before interest expenses: $5\,483\,700 + 500\,000$)/ $48\,000\,000$ (book value of total assets assumed to equal current replacement value of vessels) = 12%.



OECD (2009) *The PSE manual*

6.3. Percentage PSE (%PSE) and Producer Nominal Assistance Coefficient (producer NAC)

Percentage PSE (%PSE): PSE as a share of gross farm receipts.

Producer Nominal Assistance Coefficient (producer NAC): the ratio between the value of gross farm receipts (including support) and gross farm receipts valued at border prices (measured at farm gate).

The %PSE is calculated by dividing the PSE by the value of gross farm receipts (GFR), and multiplying the result by 100:

$$\%PSE_c = \frac{PSE_c}{GFR_c} \times 100 = \frac{PSE_c}{VP_c + BOT_c} \times 100 \quad [6.6]$$

GFR represents the value of production (*VP*), to which are added Budgetary and Other Transfers (*BOT*).

The producer *NAC* is calculated by dividing the value of gross farm receipts by the value of production at border prices. Expressed algebraically:

$$producerNAC_c = \frac{GFR_c}{VP_c - MPS_c} \quad [6.7]$$

The producer *NAC* is mathematically related to the %PSE, and can be alternatively derived as:

$$producerNAC_c = 1 + \frac{\%PSE_c}{(100 - \%PSE_c)} \quad [6.8]$$

6.5 Percentage PSE (%PSE) and Producer Nominal Protection Coefficient (producer NPC)

Producer Nominal Protection Coefficient (producer NPC): the ratio between the average price received by producers at the farm gate (including payments per tonne of current output) and the border price, measured at the farm gate.

6.5.1. Producer NPC for individual commodities

The producer NPC for an individual commodity can be derived in two ways. First, domestic and border prices can be compared, where the domestic price is the producer price plus the per unit transfers received from payments based on output:

$$producerNPC_i = \frac{\left(PP_i + \frac{PO_i}{QP_i} \right)}{RP_i} \quad [6.16]$$

- where:
- PP_i – producer price of commodity i
 - PO_i – sum of payments to commodity i based on output (PSE sub-category A.2)
 - QP_i – quantity produced of commodity i
 - RP_i – reference price of commodity i

The numerator in equation 6.16 adds the payments based on output to producer price in order to account for any direct supplements to producer price over and above market price support measures.

6.5.2. Producer NPC for a country

Once producer NPC values have been calculated for each individual commodity, a national (aggregate) NPC can be derived. As prices and quantities cannot be aggregated for different commodities, the producer NPC for a country is calculated using the value of transfers:

$$producerNPC_c = \frac{(VP_c + PO_c)}{(VP_c - TPC_c - TPT_c)} \quad [6.17]$$

- where:
- VP_c – total value of production for country C
 - PO_c – total sum of transfers in PSE category A.2 for country C
 - TPC_c – total Transfers to Producers from Consumers for country C
 - TPT_c – total Transfers to Producers from Taxpayers for country C

The producer NPC for individual commodities can also be calculated based on the transfer values method, by substituting the appropriate values for the individual commodity into equation 6.17.... When expressed in this form it can be seen that the denominator for the producer NPC, while very close to, is different from the denominator used to calculate the producer NAC (equation 6.7). The denominator for the producer NAC subtracts the total MPS value from the value of production and not just transfers from consumers and taxpayers to producer, i.e., the denominator for the producer NAC is potentially a larger number as it adds back in levies and excess feed cost as appropriate

8.3. Percentage GSSE (%GSSE) and Percentage TSE (%TSE)

Percentage GSSE (%GSSE): transfers to general services (GSSE) as a share of TSE.

Percentage TSE (%TSE): overall transfers from agricultural policy (TSE) as a share of GDP.

Two relative indicators of support are derived from absolute values of GSSE and TSE. The %GSSE indicates the importance of support to general services within total support. It is calculated as the per cent share of the TSE:

$$\%GSSE = \frac{GSSE}{TSE} \times 100 \quad [8.4]$$

The %TSE indicates the level of total support to agriculture relative to a country's gross domestic product (GDP). The %TSE is found as a per cent share of the value of GDP:

$$\%TSE = \frac{TSE}{GDP} \times 100 \quad [8.5]$$

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THE GLOBAL SUBSIDIES INITIATIVE (GSI) OF THE INTERNATIONAL INSTITUTE FOR SUSTAINABLE DEVELOPMENT (IISD)

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