



## **SUSTAINABLE DEVELOPMENT**

# **OECD WORKSHOP ON ENVIRONMENTALLY HARMFUL SUBSIDIES**

### **OECD WORK ON DEFINING AND MEASURING SUBSIDIES IN INDUSTRY**

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The views expressed in this paper are those of the author and do not necessarily reflect those of the IEA/OECD or its Member countries.

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## OECD WORK ON DEFINING AND MEASURING SUBSIDIES IN INDUSTRY

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### 1. Introduction

1. Subsidies to industry (here defined as manufacturing and services excluding transport services) are estimated to account for 20%-30% of all OECD support to various economic sectors (other large recipients of subsidies are agriculture, fisheries, energy and transport services). Although industrial subsidies are declining over time and becoming more diversified in their objectives, they continue to have distortive effects at national and international levels. Globalisation and rapid technological progress are taking international competition in industry to new levels. Virtually all OECD countries provide some form of government assistance to industry to improve the competitiveness of domestic firms and increase structural flexibility in the economy. However, industrial support measures can also impede structural adjustment, distort resource allocation and precipitate international frictions. Governments need transparency in industrial support measures to understand their economic, social and environmental effects as well as to avoid competitive distortions at international level. This was the aim of OECD work on industrial subsidies in the early 1990s (**Box 1**).

#### Box 1. Previous OECD analysis of industrial subsidies

In order to improve international transparency of public support to manufacturing industry, in 1986 the OECD Industry Committee launched a project on "*Subsidies and Structural Adjustment*" which was later renamed "*Public Support to Industry*". The study found that the value of overall industrial support grew by 24% in the OECD area in 1989 to 1993, when nominal support was estimated at 1.1% of manufacturing GDP. The number of support programmes reported increased by 11% in this period. There was some indication that expenditure levels decreased in 1994 and 1995. The study identified a shift from sector-specific subsidies to horizontal policy aims, including regional development, research and development (R&D), and small and medium-sized enterprises (SMEs), with the last accounting for more than one-third of all reported programmes. There was also a shift towards programmes supporting energy efficiency and environmental protection. In terms of sectoral programmes, more than 50% were directed to three industries: steel, shipbuilding and textiles.

Source: OECD, *Spotlight on Public Support to Industry*, 1998.

2. There are many reasons why governments might subsidise industry, of which three seem to have some merit from an economic perspective: 1) to alleviate market failures, 2) to exploit economies of scale and 3) to meet social policy objectives (Ford and Suyker, 1990; Grossman, 1990). The first argument hinges on the notion that markets are not able to allocate resources efficiently in some cases. For instance, positive externalities associated with knowledge capital may lead firms to underinvest in knowledge.

Government assistance to firms that invest in knowledge may be one way of offsetting market failures. In addition, asymmetric information between two economic agents may lead to market failure. For example, informational asymmetry between entrepreneurs and potential investors may necessitate some form of government intervention to fill financing gaps such as guaranteed loans or subsidised interest rates.

3. The second argument is based on the belief that there are economies of scale associated with size, which has been used by countries to protect infant industries from international competition. OECD countries are now providing government assistance to emerging sectors such as information and communications technologies (ICT) and biotechnology where substantial agglomeration economies are believed to exist. Lastly, governments may provide industrial support to meet social policy objectives, such as to reduce regional disparities in income and employment or encourage the growth of small businesses.

4. In practice, a number of factors may prevent industrial subsidy policies from achieving their desired objectives. The formulation and implementation of subsidy programmes may be driven by political considerations rather than economic efficiency, resulting in a sub-optimal allocation of resources. The existence of subsidy programmes may encourage rent-seeking behaviour on the part of firms resulting in efficiency losses. In addition, governments may lack information or capabilities in selecting industries or firms as recipients of support and fail to meet the objectives of subsidy programmes.

5. Government support to industry can also distort resource allocation and impede the structural adjustment necessary to achieve sustained economic growth (Harris *et al.*, 1993). *First*, resources could be retained in government-supported industries rather than utilised in other sectors with more neutral economic or social impacts. Assistance to energy-intensive industries, for example, can increase negative externalities damaging to the environment. *Second*, government support distorts both output and input prices thereby slowing down or impairing industry's capacity to respond to changes in the economic climate. *Third*, administration costs associated with running subsidy programmes can raise distortions in the economy. *Fourth*, the extra tax revenues raised to finance subsidy programmes can also introduce economic distortions. Many evaluations undertaken by governments present the positive benefits of industrial subsidy programmes without properly taking into account the damage they impose on non-recipients as well as other costs and efficiency losses (Moore, 1999).

6. Studies suggest that industrial subsidies often do not have their desired outcomes in terms of growth and productivity. For example, reduced levels of government assistance in Australia were found to coincide with a faster pace of structural change (Harris *et. al.*, 1993), and declining government assistance was associated with improved productivity growth in Australian manufacturing (Gretton and Fisher, 1997). Studies of Japan, Korea and Sweden suggest there is no evidence that subsidies improve industrial productivity growth even in the presence of market failure justifications (Beason and Weinstein, 1996; Bergström, 2000; Lee, 1996). In general, industrial subsidy programmes need to be carefully designed, closely monitored and properly evaluated if beneficial effects are to be realised.

## **2. Data on industrial subsidies**

7. It is difficult to accurately measure the extent of industrial support across OECD countries due to the lack of comprehensive and comparable statistics. Data are available from diverse sources, each with its own objectives, *e.g.* the System of National Accounts (SNA), the European Commission (EC), the World Trade Organisation (WTO), as well as the OECD (**Box 2**). However, these sources differ in both their data and industry coverage. For example, the term "*industry*" generally refers to both manufacturing and service sectors. In some cases, data are limited to manufacturing sectors, while in others, they are extended to encompass service sectors including transport services. In addition, sources differ on their definition of industrial supports which can include grants, tax expenditures, preferential interest rates, underpriced

inputs or infrastructure, etc. When comparing different subsidy data sources, care must be taken to specify which industrial sectors and which types of subsidies are included.

### Box 2. Sources of data on industry subsidies

The *System of National Accounts* (SNA) defines subsidies as "...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" (OECD, 2002a). While these data are available in a standardised framework, there are a number of shortcomings (Schwartz and Clements, 1999). The SNA data only cover direct grants to producers in terms of gross budgetary outlays and do not include other types of subsidies such as credit subsidies, tax concessions and subsidies to consumers. They do not include grants that governments may make to enterprises in order to finance their capital formation or compensate them for damage to their capital assets. Moreover, a number of operations that create subsidies are not captured by government accounts, e.g. subsidies to cover losses of state-owned enterprises or provided by international organisations.

The *European Commission* regularly publishes state aid surveys categorised by financing instruments and policy objectives (EC, 2001b). Aid instruments include grants and interest subsidies, tax exemptions, equity participation, soft loans, and tax deferrals and loan guarantees. All state aid data are converted into cash grant equivalent form to improve comparability across member countries and over time. The EC defines state aid as "any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the common market" (Article 87 of the EC Treaty). State aid is considered a measure which confers advantage to selected firms thereby affecting the competitive balance between the recipient firm and its competitors. It excludes general measures which are not selective, e.g. those which may benefit all firms in a country as well as small amounts unlikely to have an appreciable effect. It also excludes aid that promotes culture and heritage as well as that granted to individual consumers or necessitated by natural disasters. Non-neutral public procurement policies that discriminate against foreign suppliers are also not covered.

*World Trade Organisation* (WTO) notifications are another source for estimating the level of industrial subsidies. WTO member countries are obligated to notify subsidy programmes and measures to the organisation under Article XVI:1 of the General Agreement on Tariffs and Trade (GATT) 1994 and Article 25 of the Agreement on Subsidies and Countervailing Measures (WTO, 1994). These subsidy measures include direct transfers of funds, fiscal incentives and government provision of goods and services other than general infrastructure, which have not been systematically compiled. The estimates of the extent of subsidisation using WTO notifications suffer from inconsistencies in reporting among member countries who have difficulties preparing notifications (WTO, 2001).

In the *OECD* project on Public Support to Industry, data on industrial subsidies was collected annually for 25 OECD countries for the period 1989-93 and for a smaller number of countries for 1994-95. Measurement was based on *Net Costs to Government* (NCG) or gross budgetary outlays on subsidies minus cost recovery (e.g. loan repayments, user fees). This included budgetary transfers, subsidised and concessional credit (loans and guarantees), underpriced material and resource inputs, and foregone tax revenues. In 1995, a methodology for reporting industrial subsidies was published (*Industrial Subsidies: A Reporting Manual*).

### 3. Trends in level of industrial subsidies

8. Based on diverse data sources, there appears to be a general downward trend in the level of industrial support over time in the OECD area. According to general data from the System of National Accounts (SNA), cash subsidy expenditures as a proportion of GDP are decreasing over time across OECD countries (**Table 1**). For those countries where data are available, there was an upward trend in subsidy rates in the 1970s. This trend was reversed in the 1980s and continued its downward movement in the 1990s. Moreover, the extent of subsidy in many European countries remains two to four times higher than that of the U.S. However, SNA data does not yield subsidy information other than cash grants to producers nor does it allow subsidies to be categorised by policy objectives.

**Table 1. Total economy subsidy rates (national accounts basis, % of GDP)**

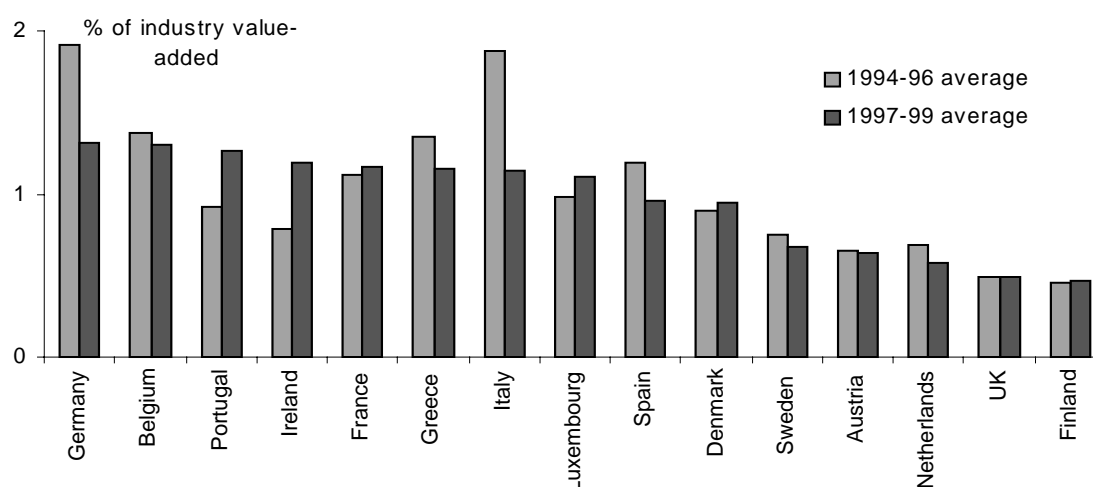
	1970	1980	1990	2000
Australia	0.95	1.54	1.44	1.07
Austria	..	3.17	3.07	2.45
Belgium	2.28	2.78	1.66	1.49
Canada <sup>2</sup>	0.88	2.77	1.50	1.09
Czech Republic <sup>3</sup>	..	..	..	3.07
Denmark	..	1.65	2.25	2.21
Finland	..	3.19	2.90	1.55
France	..	2.13	1.82	1.27
Germany	..	..	..	1.72
Greece	0.70	2.00	1.22	0.18
Hungary <sup>3</sup>	..	..	..	1.35
Iceland <sup>3</sup>	..	..	3.38	1.54
Ireland	..	..	1.13	0.71
Italy	..	2.70	1.88	1.20
Japan	1.08	1.48	1.09	0.92
Korea <sup>3</sup>	0.35	0.86	0.56	0.27
Luxembourg	..	..	2.58	1.66
Mexico <sup>3</sup>	..	..	..	0.36
Netherlands	..	..	2.25	1.52
New Zealand <sup>1</sup>	..	..	0.27	0.32
Norway	..	5.17	4.51	2.21
Poland <sup>3</sup>	..	..	..	1.09
Portugal	..	..	..	0.89
Slovak Republic <sup>2</sup>	..	..	..	3.91
Spain	..	..	..	1.13
Sweden	..	..	..	1.64
Switzerland <sup>1</sup>	..	..	1.74	1.82
Turkey	..	..	..	..
United Kingdom	1.72	2.25	0.88	0.56
United States	0.45	0.35	0.46	0.45

Source: BEA (2002); OECD (2002a).

Notes: 1. 1997 instead of 2000. 2. 1998 instead of 2000. 3. 1999 instead of 2000.

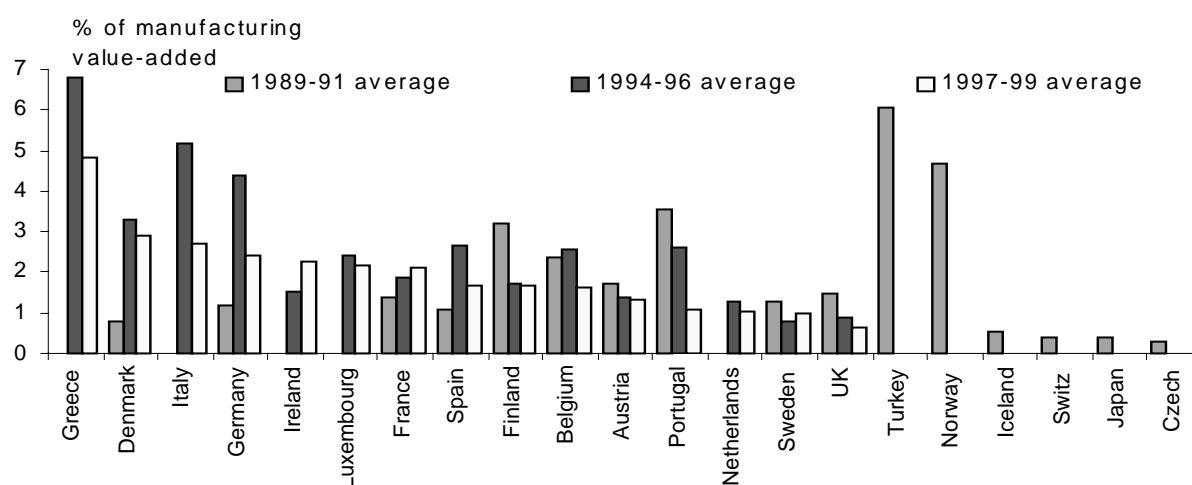
9. The downward trend in industrial support is mostly confirmed by the European Commission survey of state aid. More than half of EU members experienced a decline in the level of industrial state aid (to both manufacturing and services including transport services) as a proportion of value-added in the 1997-99 period compared to 1994-96 (**Figure 1**). Germany and Italy experienced the greatest decline in industrial support, while Portugal and Ireland showed the largest increase. For the manufacturing sector alone, EU subsidies as a proportion of manufacturing value-added decreased in 1997-99 compared to 1994-96 for most countries except Ireland, France and Sweden (**Figure 2**). When compared to earlier OECD data from the survey of industrial support, subsidies to manufacturing are far lower in 1997-99 than in 1989-91 with the exception of Denmark, Germany, France and Spain. Subsidy rates for manufacturing remain higher than industry-wide rates for all countries except Portugal, suggesting that the manufacturing sector continues to receive a disproportionate share of industrial supports despite its declining role in the economy relative to services.

**Figure 1. State-aid to industry as a proportion of industry value-added**



Source: Based on EC (1998, 2001b).  
 Note: Industry excludes the primary sector.

**Figure 2. State-aid to manufacturing**



Source: 1989-91 average from OECD (1998). other years based on the EC (1998, 2001b).  
 Note: The 1989-91 subsidy rates from the OECD may not strictly be comparable with the 1994-96 and 1997-99 state aid rates from the EC due to differences in coverage, methodology and definition.

#### 4. Trends in purpose of industrial subsidies

10. As indicated by the 1998 OECD study of industrial support, there is a continuing trend away from subsidies for particular sectors towards more horizontal objectives, including regional development, research and development (R&D) and small and medium-sized enterprises (SMEs). The other stated goals of industrial support are enhancing environmental protection and energy efficiency, increasing international competitiveness, and industry restructuring and training.

11. In the European Union, the largest portion of aid to industry (which here includes manufacturing and some services but excludes transport services) has been for regional support (**Table 2**). Although aid to

industry in regions has declined from 45% of total EU industrial subsidies in 1994-96 to 36% in 1997-99, regional aims are still the single most important target for support. This is particularly true for Greece, Italy and Portugal.

**Table 2. Distribution of industrial subsidies by purpose for EU members**

(based on EC state aid survey)

1994-96 average

	Horizontal					Sector			Region
	R&D	SME	Trade	Env <sup>2</sup>	Oth <sup>3</sup>	Steel	Ship-bui lding	Other sector	
Austria	19.3	12.7	0.0	17.2	24.4	1.5	0.0	11.4	13.4
Belgium	10.0	20.8	3.8	0.5	10.8	0.3	2.4	26.3	25.0
Denmark	29.2	4.9	7.0	43.2	0.0	0.0	9.7	4.2	1.7
Finland	35.1	21.0	10.5	6.1	1.8	0.0	0.0	2.2	23.5
France	18.0	3.7	6.9	1.1	3.5	0.0	0.7	44.1	22.0
Germany	5.2	4.0	0.0	1.8	3.3	1.3	2.9	26.4	55.1
Greece	1.5	1.7	15.3	0.0	12.3	0.0	0.0	3.1	66.1
Ireland	5.9	17.2	3.0	0.6	9.9	7.2	0.0	0.2	56.0
Italy	2.8	6.3	8.8	0.9	12.4	5.6	2.1	3.2	57.9
Lux.	6.5	20.7	0.7	5.0	0.2	1.5	0.0	0.0	65.4
Neth.	19.7	7.9	2.7	9.5	33.9	0.0	6.6	3.3	16.5
Portugal	3.5	0.1	0.2	1.9	18.5	29.6	4.1	17.4	24.7
Spain	4.7	6.7	0.3	1.9	2.7	21.4	13.5	39.8	9.0
Sweden	10.7	15.6	0.0	7.6	0.1	0.0	0.0	4.5	61.5
UK	7.1	2.9	2.9	0.1	0.5	0.0	0.3	50.4	35.8
EU	7.3	5.3	3.3	2.3	6.0	3.4	3.1	24.3	45.1

1997-99 average

	Horizontal					Sector			Region
	R&D	SME	Trade	Env <sup>2</sup>	Oth <sup>3</sup>	Steel	Ship-bui lding	Other sector	
Austria	29.9	12.7	0.0	10.5	6.4	0.7	0.0	8.2	31.6
Belgium	15.6	18.7	0.6	0.7	35.0	0.1	0.0	1.6	27.6
Denmark	17.6	1.4	3.9	42.5	25.8	0.0	4.0	3.1	1.6
Finland	32.8	14.3	8.4	9.5	9.4	0.0	7.2	4.3	14.1
France	13.6	3.1	1.5	0.7	7.0	0.0	3.0	48.6	22.6
Germany	8.2	8.4	0.0	1.9	1.5	0.0	2.0	34.6	43.4
Greece	0.0	2.5	1.2	0.2	0.1	1.3	1.4	0.5	92.9
Ireland	1.6	0.6	0.5	0.5	52.8	0.0	0.0	22.6	21.5
Italy	4.2	10.4	0.0	0.6	7.1	1.1	2.2	11.2	63.1
Lux.	9.3	21.4	0.6	4.3	0.0	0.0	0.0	4.4	59.9
Neth.	24.5	3.6	4.0	41.1	5.5	0.0	3.3	5.2	12.9
Portugal	1.1	2.0	0.0	0.8	16.6	0.1	1.0	6.5	71.9
Spain	6.4	7.1	0.0	1.2	23.6	1.3	12.6	37.8	9.9
Sweden	16.4	6.8	0.0	22.5	5.5	0.0	0.0	17.5	31.2
UK	3.4	8.6	2.6	0.8	35.6	0.0	0.0	24.7	24.3
EU	8.8	7.2	0.8	3.0	10.3	0.3	2.8	30.6	36.2

Source: Based on EC (2001b).

Note: 1. Industry excludes the primary sector and transport services.

2. Env refers to programmes related to protecting the environment and saving energy.

3. Others include those programmes related to employment/training and rescuing/restructuring.



12. Research and development (R&D) has increased as a purpose of EU industrial support, from 7.3% in 1994-96 to 8.8% in 1997-99. This is particularly the case in Austria, Germany, the Netherlands, and Sweden. Finland devotes the highest portion of industrial subsidies to R&D - more than 30% of the total.

13. Similarly, supports to SMEs increased from 5.3% of total EU industrial subsidies in 1994-96 to 7.2% in 1997-99. SME supports are particularly significant in Luxembourg, Belgium, Finland, Austria and Italy. With regard to other subsidy aims, environmental protection and energy savings saw a slight increase from 2.3% of the total to 3% while restructuring and training grew from 6% to 10.3%.

14. Direct support to sectors such as steel and shipbuilding have decreased their overall share of EU state aid. The steel sector accounted for 3.4% of aid in 1994-96 which fell to 0.3% of aid in 1997-99. Largely due to a strict code regarding aid to the steel industry, all EU countries decreased their share of industrial state aid towards the steel sector in this period, with drastic declines in Spain and Portugal. There are continuing efforts in the EC, OECD and WTO to reduce distortions in world steel markets caused by various forms of government intervention (**Box 3**).

### **Box 3. OECD discussions on supports to the steel industry**

Past and current subsidies in the steel industry, along with related government supports, have resulted in significant distortions in steel markets world-wide. Government aid has included assistance to (i) promote the construction of new facilities, (ii) prevent the collapse of inefficient firms and (iii) help finance or facilitate industry restructuring. This industry support has fuelled overcapacity which, in turn, has given rise to an increasing number of trade measures, particularly in the form of antidumping and, more recently, safeguard actions.

In September 2001, a High-Level Meeting on Steel was convened at the OECD to explore ways to strengthen multilateral disciplines on government measures and industry practices that distort steel markets, with specific attention to subsidies and related government supports. Almost all major players, including key non-Member economies, are participating in this initiative.

In the subsidies area, there is general consensus that long-term solutions in steel will require governments to refrain from providing most forms of industry assistance to steel firms, except for the express purposes of facilitating the permanent closure of inefficient facilities, assisting redundant workers and supporting certain types of research and development. Sector specific disciplines, which have worked well in steel in the case of the EU, are being examined, as are ways that generic WTO disciplines could be strengthened to address the steel situation more effectively. Key decisions on how this work should proceed, and on how it could be linked to the WTO discussions that will take place in Cancun in 2003, are to be addressed by another High-Level Meeting on Steel at the OECD on 18-19 December 2002.

15. A similar trend can be seen in state aid to shipbuilding, which has declined from 3.1% of EU State aid in 1994-96 to 2.8% in 1997-99. However, slight increases in the share going to shipbuilding in this period were seen in Finland, France, Greece and Italy. Among EU countries, Spain devotes the largest share of its industrial supports to shipbuilding - over 12% in 1997-99. Government supports to shipbuilding are also a subject of discussions at the OECD (**Box 4**). Some EU countries also provide significant amounts of support to other industrial sectors. In France, for example, a large share goes to financial services in the form of equity financing, accounting for approximately 32% of total industrial subsidies.

16. The same trends appear to hold true for non-EU members. The distribution of industrial supports by purpose for non-EU members based on WTO notifications indicates that they are mainly used to support regional development, encourage R&D, and support sectors other than steel and shipbuilding (**Table 3**). According to WTO data, regional industrial development is emphasised in countries such as Switzerland, Australia, Norway and Canada, while R&D is a high priority for support in the Slovak Republic, the United States, Canada, Japan and Iceland. Environmental protection is also a focus for

industrial support in Japan. However, problems with the WTO notification system indicate that sector-specific supports are likely being under-reported and support for regional development is over-reported. This is because regional development support is not actionable under the Subsidies and Countervailing Measures (SCM) Agreement. Thus, much industrial support may be redefined as regional development in WTO notifications. In addition, the SCM Agreement hints that regional development assistance can be designed so that, effectively, it benefits only a small number of industries. Finally, it is not always clear in the WTO system how subsidy programmes should be categorised given their multiple policy objectives. For example, an industrial support measure considered to support SMEs or R&D can also be used to support and reinforce regional objectives. In addition to under-reporting, there may also be double counting.

#### **Box 4. OECD discussions on supports to the shipbuilding industry**

The *OECD Council Working Party on Shipbuilding* has taken a relatively broad definition of support measures provided by governments to the shipbuilding industry. In most countries, shipbuilding is considered an important “strategic” industry from both defence and trade perspectives. Shipyards are large employers of labour and often located in economically-depressed regions. Most governments seek to protect their shipbuilding industries by assisting them in meeting non-commercial competition from other countries. Support measures go well beyond direct subsidies or loan guarantees to include aid such as administrative practices which provide benefits to shipbuilding that may not be available to industry generally. More specifically, the OECD definition of supports to shipbuilding include:

- direct grants and subsidies (including export credits and export subsidies);
- loans and loan guarantees at better than commercial terms;
- forgiveness of debt and provision of equity capital inconsistent with commercial terms;
- provision of goods and services on non-commercial terms;
- tax credits and other preferential tax arrangements;
- R&D assistance;
- home credits linked to contract values;
- administrative actions or practices that confer a commercial advantage on the industry; and
- domestic build or content requirements, whether by law or administrative practice.

These supports have encouraged chronic over-capacity in shipbuilding, principally by encouraging the construction of new facilities and preventing the closure of inefficient (but politically important) yards. The OECD will shortly commence negotiations on a new *Shipbuilding Agreement* which will attempt to bring more normal competitive conditions to the industry by providing legally-enforceable disciplines to curb the use of government support measures, as well as a means of dealing with pricing and other practices that distort the market.

**Table 3. Distribution of industrial subsidies (based on WTO notifications) by purpose for non-EU members**

(based on WTO notifications, 1999 or closest year)

	% of total industry subsidy									
	Horizontal				Sector			Re- gional	Other	
	R&D	SME	Trade	Env.	Steel	Ship-bui lding	Other sector			
Australia	5.2	0.0	0.0	0.0	0.0	10.7	25.2	59.0	0.0	
Canada	41.3	15.3	0.0	0.0	0.0	0.0	0.0	43.4	0.0	
Czech	7.3	15.0	7.1	2.7	0.0	0.0	67.7	0.0	0.0	
Iceland	36.4	13.5	0.0	0.0	0.0	0.0	0.0	27.6	22.5	
Japan	40.1	1.9	0.0	36.7	0.0	0.0	21.3	0.0	0.0	
Korea	0.0	0.0	0.0	9.5	0.0	0.0	90.5	0.0	0.0	
Norway	22.4	12.9	0.0	9.4	0.0	0.6	5.1	49.6	0.0	
Poland	0.0	0.0	1.2	0.0	0.0	0.0	53.0	5.0	40.7	
Slovak	89.5	7.8	1.2	0.0	0.0	0.0	0.0	1.4	0.0	
Switz	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	
US	44.6	0.0	0.0	24.5	0.0	0.0	30.9	0.0	0.0	

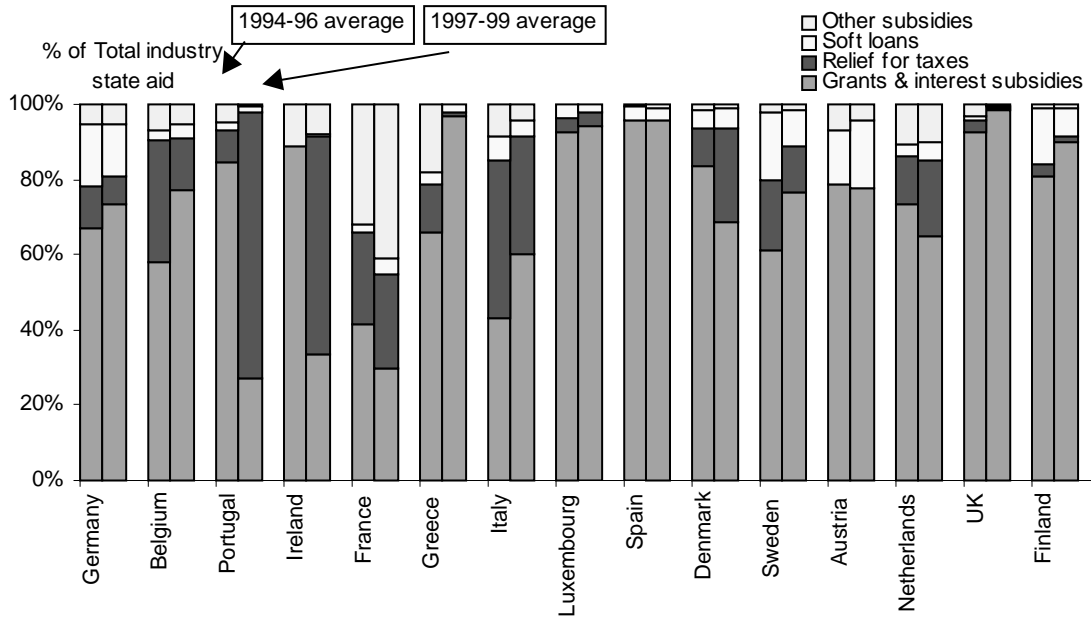
Source: WTO notifications.

Note: Industry excludes the primary sector and transport services; instruments are grants and interest subsidies.

## 5. Trends in type of subsidy instrument

17. Industrial subsidies can take several forms, including (as in the EC classification scheme) grants, interest subsidies, tax exemptions, equity participation, soft loans, tax deferrals and loan guarantees. The EC survey shows that for EU members, industrial support is provided mainly in the form of grants and interest subsidies, and to a lesser degree, tax incentives (**Figure 3**). The reliance on grants and interest subsidies increased in 1997-99 compared to 1994-96 in most EU member countries. Notable exceptions are Portugal, Ireland, Denmark and the Netherlands where they have increasingly used tax reliefs as a form of industrial support. Germany and Austria make relatively more use of soft loans in their industrial support schemes, while France provides a large share of support in the form of equity participation.

**Figure 3. Distribution of EU industrial state aid by instrument<sup>1</sup>**



Source: EC (1998, 2001b).

Note: 1. Industry excludes the primary sector and transport services.

18. The reliance on grants and interest subsidies as a form of EU industrial state aid appears to be more widespread in sector-specific support, particularly shipbuilding (**Table 4**). Schemes to enhance environmental protection in industry also appear heavily reliant on grants and interest subsidies. Other forms of financing instruments are used in meeting horizontal objectives, such as R&D support and SME development. With regard to R&D support to industry, OECD countries vary widely in their choice and combination of instruments (**Figure 4**). For example, the United States and the United Kingdom both directly fund R&D through grants and tax expenditures. Italy and New Zealand finance business R&D mostly through grants. Spain, Portugal, Canada and Australia have generous fiscal incentives for R&D and less direct government funding.

**Table 4. Share of grants and interest subsidies to total EU industrial support by purpose (%)<sup>1</sup>**  
1997-99 average

	Horizontal				Sector			Region
	R&D	SME	Trade	Env <sup>2</sup>	Steel	Ship-building	Other sector	
Austria	90.4	67.4	nil	99.9	100.0	nil	84.2	61.1
Belgium	77.2	97.8	58.4	100.0	100.0	nil	100.0	96.5
Denmark	69.0	98.3	76.5	41.1	nil	100.0	100.0	100.0
Finland	95.0	56.9	95.8	100.0	nil	100.0	94.6	86.3
France	33.6	94.3	35.7	100.0	nil	100.0	30.7	11.2
Germany	95.8	14.9	100.0	64.0	90.1	100.0	95.2	61.8
Greece	100.0	100.0	10.3	100.0	92.6	100.0	2.5	98.3
Ireland	100.0	100.0	90.9	60.2	nil	nil	0.3	75.9
Italy	62.3	94.5	62.9	100.0	100.0	100.0	48.4	55.4
Lux.	97.7	91.8	100.0	100.0	nil	nil	100.0	93.7
Neth.	96.6	45.3	0.0	34.2	nil	100.0	78.8	100.0
Portugal	100.0	100.0	100.0	100.0	100.0	100.0	61.5	3.5
Spain	81.7	76.6	100.0	100.0	91.7	100.0	100.0	92.4
Sweden	68.8	35.5	nil	83.6	nil	nil	99.7	67.8
UK	100.0	93.4	99.9	100.0	nil	nil	99.4	96.8

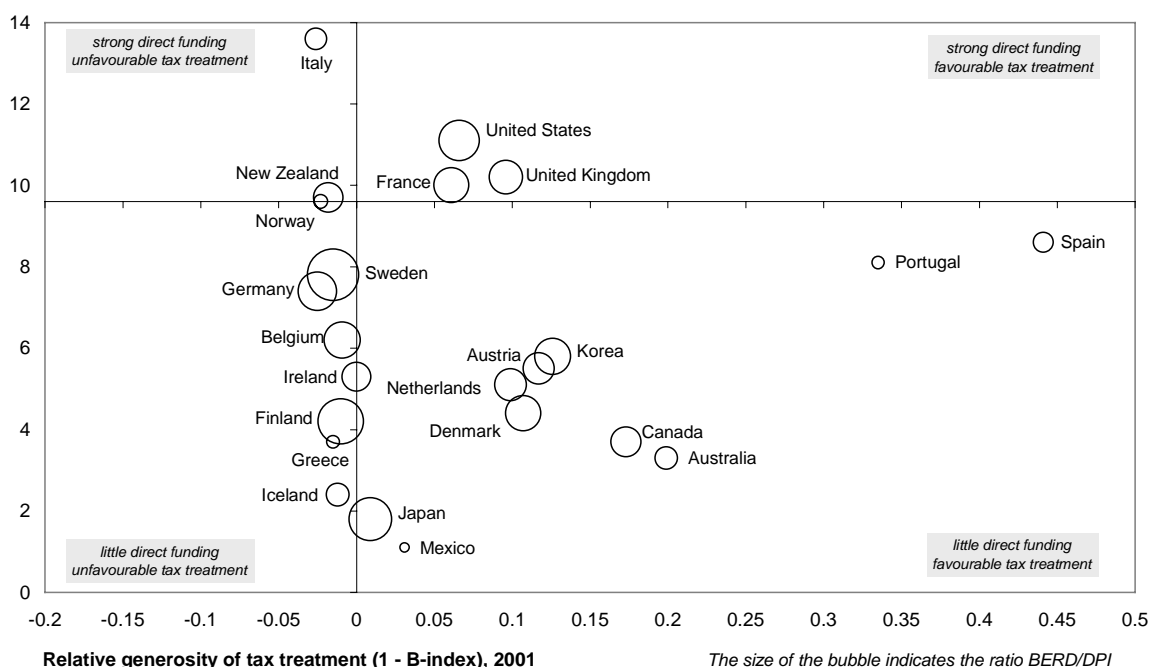
Source: Based on EC (2001b).

Note 1: Industry excludes the primary sector and transport services.

Note 2: Env refers to programmes related to protecting the environment and saving energy.

**Figure 4. Industry R&D support by type of instrument in OECD countries**

Percentage of BERD financed by government, 2000 or latest year



Source: OECD (2002b).

Notes: B-Index = before-tax income needed to break even on one dollar of R&D outlay; BERD = business expenditures on research and development; DPI = business value-added.

## CONCLUSIONS

19. Despite the difficulties in comparing industrial subsidies across OECD countries, certain trends can be identified. Available data on industrial support levels indicate that they are declining over time but still account for a significant share of overall government subsidies. Within industry, most subsidies are allocated to manufacturing sectors rather than services (with the exception of transport services), despite the fact that services account for 70% and manufacturing for less than 20% of GDP in the OECD area. Industrial subsidies are increasingly being directed to horizontal causes such as regional development, R&D and small firms rather than to specific sectors such as steel and shipbuilding. However, there is concern that sector-specific supports may be reported or relabelled to fit under the horizontal themes. In addition, many regional supports, which account for the major share of industrial subsidies, may be targeted to particular sectors or firms.

20. Industrial supports are a cause for concern primarily due to their distortive effects on international competition and trade. For this reason, supports to sectors such as steel and shipbuilding are the subject of high-level discussions at the OECD. The extent of environmental damage caused by industrial subsidies is difficult to determine. Sector-specific supports as well as other subsidies which benefit particular firms and sectors can maintain the competitiveness of industries despite more efficient competitors and block technical progress and structural adjustment. These supports can help sustain levels of production which are environmentally-harmful in terms of polluting emissions and resource consumption. On the other hand, industrial supports being given for R&D and environmental protection can be environmentally-beneficial. Many environmental improvements depend on technological change, and the share of industrial support devoted to research, alternative energy sources and environmental investments is increasing.

21. Statistics need to be improved on the international comparability of industrial support measures to increase transparency and improve understanding of their effects (both economic and environmental) at national and international levels. Despite efforts underway in different international organisations, there is no agreed definition of an industrial subsidy or agreed methods for estimating subsidy levels. A number of steps could be taken. *First*, non-EU member countries could provide information on industrial subsidies to complement the data now collected by survey from EU member countries, which also needs to be enhanced. *Second*, the comparability of subsidy data in national accounts could be improved and industry coverage expanded across countries. *Third*, analyses focusing on a narrow set of industrial support measures or specific targets such as regions or small firms could be undertaken in the OECD. *Finally*, governments should continue their efforts to assess the benefits and costs of industrial support measures, including in broader contexts such as their effects on the environment.

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