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No. 72 THE ROLE OF INDICATORS IN STRUCTURAL SURVEILLANCE

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This paper examines the role of structural indicators in the process of multilateral surveillance of structural policies. An analytical framework is suggested that is based on welfare economics and which focuses on efficiency considerations. Potential indicators are examined for six areas -- taxation, trade, industry, agriculture, labour markets and financial markets. These case studies allow a series of lessons to be drawn concerning the use of structural indicators.

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Ce document porte sur le rôle des indicateurs structurels dans le processus de surveillance multilatérale des politiques structurelles. Le cadre analytique qu'il propose est fondé sur les politiques économiques du bien-être et l'attache à des considérations d'efficience. Des indicateurs potentiels sont examinés pour six domaines précis : fiscalité, échange, industrie, agriculture, marché du travail et marchés financiers. Ces études de cas permettent de tirer un certain nombre de leçons concernant l'utilisation des indicateurs structurels.

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THE ROLE OF INDICATORS IN STRUCTURAL SURVEILLANCE

I. INTRODUCTION

1.   Economic policy has been increasingly concerned with efforts to improve
the efficiency and dynamism of economies. To this end structural reform has
become an important element in countries' agendas for policy action, while the
monitoring and surveillance of progress in implementing such reform have
become an integral part of the wider surveillance process at OECD. As a part
of the process, it has been suggested that it would be useful to develop a set
of "structural indicators" that would help to focus attention on aspects of
structural adjustment that are amenable to quantification.

2.   The object of this paper is to explore the analytical basis for
indicators, to look in detail at a limited number of areas where indicators
have been or might be used, and to assess their current and potential
usefulness in the context of structural surveillance.

3.   The need and mandate for this work was spelt out in the report on
Surveillance of Structural Policies, which was endorsed by OECD Ministers on
31st May 1989 (1). The relevant section of the report reads as follows:

> "Appropriate use of quantitative indicators might also strengthen
> the monitoring of policy reform. While not a substitute for in-depth
> assessments, simple and objective measures of the costs and benefits of
> policies and of progress towards a more favourable balance might help
> to guide governments in their reform efforts and to focus public
> attention on what is at stake. Quantitative measures have proved their
> usefulness in some specific areas; good examples are the PSE and CSE
> calculations in agriculture. These and a few others have been used in
> this report. Before a conclusion can be reached concerning the
> contribution that more systematic use of indicators could make to the
> process of structural surveillance, the analytical basis for their use
> needs to be examined, and the advantages and disadvantages of specific
> measures need to be assessed. The (Economic Policy) Committee is
> conducting a study of these questions and will draw conclusions in the
> coming year. Particular attention will be given to the international
> trade policy area -- for example, to the measurement of non-tariff
> barriers and subsidies."

4.   Indicators of economic policy and performance have long existed and
governments have monitored them, especially in the macroeconomic sphere. What
is new about the enhanced role of indicators is that they have been elevated
to a more important status in the task of multilateral surveillance as it has
developed in recent years (2). The idea of developing structural indicators
has likewise been around for many years. They have been used in the process
of country surveillance at both the OECD, in the context of country surveys,
and the IMF, in the context of Article IV consultations.

5.   The gradual extension of surveillance to structural issues (or its
intensification in that area), which has been occurring at OECD throughout the
1980s, followed the reorientation of macroeconomic policy to medium-term goals

and the parallel greater concern with the more microeconomic or supply-side aspects of policy. A series of structural reports for the Economic Policy Committee (EPC) has included certain indications of economic performance, which were thought to be reflective of structural conditions generally but were not directly linked to specific policies, and a limited range of more focused quantitative measures. A wider range of structural indicators has been used in the Secretariat studies on **Structural Adjustment and Economic Performance**, OECD (1987a) and **Economies in Transition**, OECD (1989a), the latter a crystallisation and development of the structural monitoring carried out by the EDRC (3). In addition, work by the OECD for specialised Committees has marshalled extensive data to document structural trends and facilitate cross-country analysis of specific issues. The present paper is the first attempt by the OECD to review in a more systematic way the role that indicators might play in structural surveillance (4).

6. There is no shortage of potential structural indicators. The task of this paper is to try to specify the types of indicators that might be useful for the purposes of structural surveillance and, equally important, to point to the failings of some other indicators that one might otherwise be tempted to use. In order to make such judgements, it is necessary to specify the analytical background that lies behind them.

7. The paper therefore starts with a brief review of the analytical background to indicators (Section II). This is based on welfare economics and involves consideration of the way in which markets function. The common denominator for assessing the usefulness of all of the succeeding indicators is their ability to convey the degree to which markets appear to function well (performance indicators) and the extent to which policy action can impinge on such functioning (policy indicators). This is essentially a pragmatic approach, but one which provides a useful starting point in the process of finding tractable indicators among the many potential candidates. It also leads towards a taxonomy of indicators -- basically policy- or performance-related and direct or indirect -- that allows for some guidelines as to the properties and use of indicators.

8. The following six sections of the paper then focus on six of the areas covered by the series of EPC Structural Reports to date, namely taxation, trade, industry, agriculture, labour markets and financial markets (Sections III to VIII). Each area has been considered as a case study, though each has been approached in a different way, tailored to the market or sector examined. The indicators reviewed are considered in the light of the taxonomy presented in Section II. The common themes running through each of the six case studies are: i) the capacity of indicators to provide information on the effects of policy on the efficiency of markets, and ii) the distinction between policy and performance indicators. Emphasis is placed on how clear and unambiguous the indicators are, and hence on how useful they might be for surveillance.

9. The last section presents some conclusions, setting out some general lessons for structural indicators and suggesting how progress in this area might be made.

II. THE ANALYTICAL BACKGROUND

by Tito Boeri and Andrew Dean

10.   The main considerations of welfare economics and public finance that are relevant to the assessment of structural indicators are set out below in order to provide the necessary analytical background for the case studies that follow.   In the first place this process requires the consideration of the ultimate objectives of policy and a brief review of relevant elements of welfare economics including second-best theory.   It is also necessary to consider interactions between markets in a general equilibrium framework and certain dynamic issues. This review gives rise to some guidelines as to the properties and use of indicators and a taxonomy that serves to relate the characteristics of various indicators to their potential uses.

The objectives of policy

11.   In order to assess the potential value of structural indicators in the process of policy surveillance, one needs first of all to define the objectives of economic policy. There would probably be fairly wide agreement that the ultimate objective should be to maximise the welfare of individuals on a sustainable basis. Though easily accepted, this is not a notion that is immediately operational. For one thing, it begs the question of how an objective defined in terms of individuals can be combined into a goal for society.   Questions of distribution immediately arise -- both across individuals at a given time, and across generations over time, where the intertemporal dimension has important implications for saving and investment and problems such as the protection of the environment. There may also be conflicts between global and national welfare, recognising that structural policies can have important international spillovers. The simple statement of the objective also begs the question of how one measures welfare of either individuals or societies, and how one can make assessments as to whether it is being maximised without knowing consumers' preferences, firms' technologies and so on? And to what extent do structural indicators provide information about these questions?

12.   At some stage it is necessary to be more concrete about the objectives of structural policy, by specifying derived objectives related to the ultimate objective of welfare maximisation, which can be more readily interpreted. One approach is to classify structural indicators in relation to the ways in which structural policies affect the supply side of the economy -- in particular their influence on the level of potential output and the related issue of the flexibility with which an economy responds to shocks (5). These two factors provide a useful starting point for considering structural policies and performance, though even here the links between specific structural policies and potential output and/or flexibility are often not clear. Nevertheless, there is a presumption that there are fairly direct links between policies that permit the functioning of markets and economic efficiency, on the one hand, and the derived objective of improving potential output. These links are examined below. How closely economies approach potential output is generally considered to be a macroeconomic rather than a structural question. But structural features of economies also affect the resiliency of economies

and their self-equilibration properties. This perspective on structural policies is also considered.

Measuring welfare

13. A basic problem in assessing whether a particular allocation of resources in an economy is the "best" state attainable is the difficulty of agreeing upon an ordering of alternative resource allocations. One commonly-accepted criterion -- Pareto optimality -- is that there should be no possibilities unexploited for improving the welfare of at least one individual in the economy without reducing the level of well-being of someone else. A severe limitation on the usefulness of such a criterion is that many states of the economy may be compatible with this constraint. In particular, the Pareto criterion does not embody distributional concerns. More critically, two non-optimal situations cannot be easily compared so long as movements from one to the other involve losers as well as winners. Nonetheless, the Pareto criterion provides the rationale that lies behind many structural indicators.

14. Since it is so difficult to make judgements about whether a particular economic situation is close to an optimum or not, it is common to finesse the problem by making strong assumptions. This makes it easier to locate the optimum more precisely and then to measure deviations from it which represent some degree of welfare loss. Reasoning of this sort usually entails a comparison with a hypothetical world in which markets are perfectly competitive, there are no market failures, and all actors have full information. This would be, by itself, a guarantee that the economy was achieving a Pareto optimum. The correspondence between perfect competition and the Pareto optimum depends on some fundamental results from economic theory which are not reviewed in detail here. It is sufficient to state that when competitive markets are complete (i.e. markets exist for all commodities produced and consumed in current and future periods) the equilibrium resulting from the functioning of such markets is also Pareto optimal (this being the first theorem of welfare economics). The role of prices in this context is to make the adjustment towards equilibrium rely entirely on economic incentives. Given the prices prevailing at the equilibrium, everybody is making decisions that they consider to provide the best outcome for themselves.

15. The fact that this price-led adjustment relies entirely on economic incentives is what makes competitive markets so close to the Paretian ideals. In particular, the prices prevailing at the equilibrium equate across consumers their subjective evaluation of the degree of substitutability between any two goods (consumption efficiency) and across firms the relative productivity of any pair of inputs (production efficiency). Furthermore, prices equate the subjective terms of trade defined by consumers to the technological substitutability between any two goods (exchange efficiency). These efficiency conditions hold for specific domestic markets such as labour and goods markets, for the external sector, and for transactions involving the exchange of goods over time, in other words for financial markets as well.

Wedges as a measure of distortions

16. Needless to say, this stylised universe does not accurately reflect the real world or one that could realistically be achieved. Nevertheless, the reference to the perfect competition model is useful because it clarifies the

advantages of relying on market forces under ideal circumstances. If one can remove those factors that reduce the degree of competitiveness of markets, then market-clearing prices will be all that are needed to attain an optimal allocation. Since the perfectly-competitive market provides an optimum, departures from perfect competition are regarded as departures from optimality. This is the rationale for indicators that provide information on deviations from perfectly-competitive markets, such as the extent to which taxes and subsidies drive wedges between, for example, prices faced by producers and those faced by consumers. Tariffs on trade are another example; insofar as the deviation between international and domestic prices is due to the presence of tariffs on imports, then rates of tariff or the revenues from them can be used as measures of distortions. Such measures are not, however, a direct indication of the welfare losses incurred by tariffs, which depend on price elasticities of demand and supply (see Section III.B). These wedges, or the wedge-equivalents of other measures, reflect factors that prevent prices from leading to efficiency conditions in exchange, production and consumption and provide a simple measure of deviations from the optimum. Consideration of the relevant elasticities allows one to link such wedges to measures of welfare. But, as noted below, this assumes that the first-best is attainable.

17. Elasticities play a major role in determining the relative significance of a distortion. Own-price elasticities provide information on the degree to which any specific market reacts to price distortions. Hence, the degree by which quantities produced and consumed in that market are affected by taxes is determined by the elasticities of supply and demand. These elasticities are themselves an important measure of the responsiveness of the market and the extent to which distortions affect quantities produced and consumed, and hence the allocation of resources. In the case of a tariff on imports, for instance, the greater the price elasticity of domestic supply, the greater the shift in the composition of output and allocation of labour away from optimal levels and the greater the welfare loss from a given distortion.

Distributional concerns, distortions and second best

18. All the above has so far been in terms of efficiency considerations and has neglected distributional concerns. A commonly-made assumption is that redistribution can be achieved without altering relative prices (which would disturb the efficiency conditions) by means of lump-sum transfers, so that any Pareto optimal allocation can be supported by the competitive mechanism (the second theorem of welfare economics). The point is that, independent of distributional considerations, efficiency in consumption, production, and exchange is desirable in this context (6).

19. Insofar as non-distortionary transfer schemes are deemed infeasible, the compatibility between efficiency and equity concerns breaks down. If equity goals are an objective of public decision-making, and assuming that there is a significant role for government (at least as regards public goods), distortionary taxes are likely to be implemented. This means that a Pareto optimum will not be attained. In this case, the definition of a welfare optimum, and consequently the design of indicators, must recognise the existence of unavoidable distortions. In other words, it should be made in terms of a second-best choice. Clearly, there are many other reasons that might prevent attainment of a Pareto optimum and which are generally considered by the literature, such as distortions due to imperfect or

incomplete markets, informational asymmetries, externalities in consumption or production, public goods, indivisibilities, and natural monopolies. These are all factors that need to be taken into account when assessing whether it is possible to devise useful structural indicators in different areas.

20. Does it still make sense to use price wedges as indicators of deviations from optimality when the first-best with zero wedges is no longer attainable? If not, are there ways to define optimality conditions, at least for specific markets, in terms of observable market magnitudes? These issues have been extensively discussed in the literature on second-best problems, and it is fair to say that there are no general rules for locating optima, i.e. defining indicators in this context. A pragmatic approach which is worth mentioning, though, is the desirability of so-called piecemeal policies. The reasoning runs as follows: whenever some efficiency conditions are met, while others are not, it is desirable to apply policies that preserve the efficiency of these "non-deviant" sectors. In order to apply such an approach, which essentially assumes that partial-equilibrium analysis is appropriate, one needs to be able to identify whether there are important interactions between different sectors of the economy. In particular, the stronger the cross-price elasticities among different sectors, the more such an approach might be misleading in devising indicators of deviations from optimality.

Interactions: the general equilibrium approach

21. Because of the existence of interactions between different sectors or markets, both within economies and across countries, it is clearly not warranted to place great reliance on a structural indicator in one segment of the economy without paying due attention to possible repercussions elsewhere. In terms of general equilibrium analysis, the indicators suggested above may be misleading because of their inability to cope with interactions between different distortions. The larger the cross-price elasticities, the greater will be the interaction. However, there is not necessarily a simple relationship between the size of own and cross-price elasticities and the welfare effects of price distortions. Indeed, a large quantity effect from price distortions may be of little welfare significance. To take a simple example, if farmers can easily shift from producing rapeseed to producing sunflowers, and the oils produced from these two crops are relatively indistinguishable to consumers (the cross-price elasticities of both supply and demand are high), a tax on one may cause a large shift of production and consumption towards the other. But the welfare effects of this would be slight since the resources going into oil crops would be little affected and consumers would be nearly as satisfied. There is thus an important transition from partial-equilibrium analysis, where the welfare loss is a function of the distortion, and general equilibrium analysis, where the welfare loss is dependent on a variety of interactions in factor and product markets.

22. Within limits, applied general equilibrium (AGE) models can be used to analyse the static effects and hence provide indications of long-run effects of policies. Such models have been extensively used to analyse the effects of tax structures and trade policy. But there is often considerable uncertainty about the relevant parameter values and most general equilibrium models, as well as partial-equilibrium models, ignore adjustment processes.

Dynamic issues

23.   **The adjustment process**. The rationale for some indicators presented in Section III, such as the elasticity of wages with respect to unemployment and the short-run and medium-run responsiveness of wages to inflation, is that they give some information on the response of product or factor markets to shocks. Such indicators are useful in assessing dynamic effects but are a rather indirect measure of structural adjustment and structural policies. They are indicative of the adjustment process from one equilibrium to another but they do not measure the distance from the new or old equilibrium to the optimum, the role that is played by the static indicators outlined above.

24.   Interpretation of these indicators must also be carried out with care since there is no a priori reason for thinking high or low elasticities to be a good or bad thing. Their significance will depend on the nature of the shock and on the ensuing adjustment process. There are cases where a high degree of responsiveness of markets to price changes is desirable, others where the opposite is true. Although the underlying theme of this section is that markets should function freely, it is often not clear whether it is desirable to have market-clearing occurring via price or quantity adjustment. The elasticities are indicative of the mix of the two characteristics of a market, and this may vary across products, factors and countries for perfectly good reasons. For example, low elasticities may merely reflect household preferences or technologies available to firms that allow only for a limited degree of substitutability between goods and factors of production, especially when irreversible investments are called for in specialised human or physical capital. On the other hand, low elasticities can also reflect undesirable market rigidities. A low responsiveness of wages to unemployment, for instance, might reflect structural rigidities in labour or product markets that insulate employed workers from the adjustments that are called for in the economy, insulation that is provided at the expense of the unemployed. One can clearly not make judgements about performance simply on the basis of indicators of flexibility, although they can be helpful descriptive tools. The reasons for different degrees of price and quantity flexibility in markets need to be taken into account in evaluating whether or not they are indicative of a structural problem.

25.   **Intertemporal optimisation**. The above discussion has essentially focused on the characteristic of efficiency -- making the best use of the available factor inputs -- and has focused on static Pareto-type welfare maximisation. But there is also a dynamic aspect, because the most efficient use of factors over time is also relevant. The maximisation of welfare over time involves decisions as to how much to reduce consumption today in order to save, undertake investment, and produce more output for consumption in the future. This trade-off is made efficiently when all consumers and investors face a common rate of return in financial markets that produces a balance between flows of saving and investment. Financial market efficiency also involves the efficient diversification and allocation of the risks inherent in forward-looking decisions to save and to invest.

26.   **Diffusion and innovation**. There is a further aspect in the dynamic process of growth. For it is not just the accumulation of capital but the development and adoption of new technology at an optimal rate that is important in maximising potential output over time. The importance of

competitive markets to innovation and diffusion is more difficult to assess, but cannot be ignored. This process entails a cost that arises from what Schumpeter called "creative destruction", as new activities supplant old ones. Yet it is such a process that ensures that markets continue to evolve and change in reaction to technological innovation and ensuing price signals, in ways that maximise efficiency and hence welfare. This area, though important, is frequently overlooked, at least partly because it is less easy to quantify or to summarise in simple indicators, although many attempts have been made to do so using series such as patents data, R&D expenditures and data on the diffusion of best-practice technology across firms. Although diffusion indicators provide some information, these are not adequate substitutes for detailed studies of diffusion in specific processes or industries.

27. **Human capital**. There is another, deeper dimension to this issue, which concerns human capital. It is the quality of a country's human capital stock -- which is linked to education and training systems -- which will importantly determine the extent to which other resources can be used efficiently. Measures of efficiency in this area are difficult to devise and calculate, which limits the availability of structural indicators, although the work of the Directorate for Social Affairs, Manpower and Education is carrying out important work to provide internationally-comparable data in this area. The fact that quantitative indicators can be derived only in those areas where measurement is tractable is an important factor to take into account when considering the coverage of structural indicators.

Measuring policies (7)

28. In order to be able to measure the effects of policies it is necessary that the policies themselves be measurable. But this is frequently difficult, if not impossible, although proxy measures are sometimes available. A simple illustration of such difficulties is discussed in the section on trade below. Tariffs are in principle easy to measure, albeit time consuming to calculate if one wants to estimate average rates or even more complex notions such as effective rates of protection. But at least measurement appears tractable, even if the further step of measuring the effects of tariff policies is not a trivial proposition. Many non-tariff barriers, which may have effects similar to tariffs, are far less amenable to measurement and to a certain extent have therefore escaped the monitoring process. If the difficulties of quantifying non-tariff barriers mean that they are not measured, then their effects -- in this case their costs -- may be played down or even overlooked. This could lead to potentially counterproductive outcomes. For example, it may encourage the substitution of non-tariff barriers for tariffs. The danger in cases such as these is that more emphasis may be placed on the policy that is inherently measurable and less emphasis, or none, on the unmeasurable policy.

29. Much effort has been devoted to attempting to provide quantitative estimates of those policies which have in the past proved difficult to measure. For example, as noted in the section below, attempts have been made to convert non-tariff barriers into their notional tariff equivalents and different types of subsidy into subsidy equivalents, so that like can be compared with like. Of course, this procedure involves producing indicators that are derived in less direct ways than their numeraire counterparts into whose terms the conversion is being made. Though such a conversion may be complex, the resulting indicators serve to make opaque policy measures more

transparent and hence easier to monitor and evaluate in terms of costs and benefits.

Establishing micro-macro links

30. The links between microeconomic decision-making and macroeconomic performance are made difficult by not having accepted, well-tested models to link the two. Work is now under way in some research centres to try to link AGE and macroeconomic models and to incorporate dynamics, but such work is still in its early stages. Many dynamic macroeconomic models exist but they usually do not attempt to model micro-decisions -- by households, companies and government -- in the degree of detail that would be necessary to make estimates or judgements about structural policies and structural adjustment. Hence, indicators which attempt to show the effects of micropolicy on macroeconomic performance are fraught with difficulty. Because they must depend, whether implicitly or explicitly, on a complex model of the system in order to capture the dynamic effects, they are likely to be far less direct than indicators that attempt only to measure the stance of policy per se. It is probably true more generally that those indicators that attempt to measure dynamic effects are likely to be more indirect and depend to a greater extent on judgement about the way in which the system operates.

31. Because of the difficulties of monitoring the micropolicy-macroperformance links, the indicators dealt with more specifically below tend to be mostly indicators that capture micropolicy effectiveness. Similarly, the structural monitoring and surveillance provided in the EDRC country surveys and EPC structural reports have to date focused on an analysis of individual policy areas and the prospects of reforming policy in each of them. Microeconomic policies, insofar as they affect microeconomic processes and the efficient functioning of markets, are regarded as a precondition for better macroeconomic performance.

Implications for indicators

32. The above discussion suggests several ways in which potential indicators might be classified. Indeed, the classifications below have already been raised implicitly above; they will be used explicitly in the detailed review by area which follows in the next section.

i) Direct and indirect indicators

33. One class of indicators can be fairly closely related to the way in which markets work and the way in which policies affect their functioning. These could be categorised as direct market-related indicators. In general, such indicators measure the degree to which policy or other factors have diverted the economy from some optimum. Examples of such indicators would be tax wedges and tariff rates which can be said to measure directly the extent of distortions.

34. In contrast to such direct indicators, there are other indirect indicators where the relation between the indicator and the desired position of the economy is far less clear. This may be because the links are tenuous or because the derivation of the indicator is the outcome of a more complex process that may well involve the specification of a model and the assignment

of values for its structural parameters through econometric estimation or calibration. Since one cannot always claim to have achieved a complete and satisfactory specification, and estimated parameters are uncertain, the measures produced by such an exercise are more appropriately used to stimulate and focus debate than to provide definitive answers. The more indirect nature of such indicators also means that they are less simple and transparent than other measures. They may also be ambiguous, especially if they are composite indicators which somehow summarise the interaction between markets. Hence, the effects on performance of certain values of such indicators, or changes in them, are generally less clear than in the case of direct indicators.

ii) Policy and performance indicators

35. Another distinction that has already been suggested above is that between policy and performance indicators. **Policy** indicators represent or proxy different facets of policy, ranging throughout the areas of economies where governments intervene. Policy indicators will usually be relatively direct and will often provide some information on the extent of any distortions for which governments are responsible. If a policy indicator can also be linked to performance, then that is an added advantage but not a necessary condition for the indicator being useful. For the indicator already represents a divergence from an optimum and therefore implicitly has some qualitative information content about the efficiency of structural policies.

36. **Performance** indicators, on the other hand, are generally more descriptive in nature and may have no clear implications for policy per se. Performance indicators, therefore, may show that something is wrong but, taken in isolation, they will not often provide clear signals as to what needs fixing. The indicators may often be rather indirect, but even where they are not they may well be ambiguous. A common example of this is that structural changes in the composition of output are often taken to be synonymous with structural adjustment. An indicator of rapid structural change might on these grounds be regarded as an indication of satisfactory policy. But an adjustment of quantities is not always preferable to an adjustment of prices or, as would be normal, to a simultaneous adjustment of both. Moreover, resource shifts may reflect policy distortions in market signals, especially relative prices, and hence be costly in terms of moving resources in the wrong direction, as with agriculture in recent years. Hence indicators of structural change can give very ambiguous signals as to an economy's capacity to adjust and seldom provide much direct information on the effectiveness of economic policy. As shown in the detailed reviews below, this is often the case with the descriptive performance indicators that are sometimes used in the monitoring process.

* * * * *

Note on the six case studies (Sections II to VIII)

Readers should note that, with the exception of the summary tables which are included in the text, all of the Tables and Charts referred to in the six case studies that follow are to be found grouped together at the end of each section.

III. TAXATION

by Peter Farren

37. In OECD countries taxation receipts (including social security contributions) account on average for around 90 per cent of general government current income. While fulfilling the primary task of ensuring the inflow of revenue to defray the costs of government, tax systems induce distortions into economic decision-making which result in resource misallocation and detract from countries' growth performance. With a view to establishing criteria for devising and assessing appropriate indicators, this section first reviews the nature and determinants of tax-related distortions and then summarises the salient features of OECD countries' present tax regimes. This discussion provides the context for a review of the indicators summarised on the next page. In the case of taxation, these are by nature linked to the policy process and hence can be characterised as policy rather than performance indicators in the terminology presented above.

i) Tax-related distortions

38. Generally, the imposition of a tax affects economic agents' behaviour through two distinct channels: firstly, by reducing real income by the amount of resources transferred to government (income effect) and, secondly, by altering relative prices as the price of the taxed good or factor rises relative to that of other goods or factors (substitution effect) (8). The substitution effect introduces distortions into decision-making by modifying agents' marginal evaluations, thereby reducing real income by more than the revenue collected by government -- the difference being the "deadweight" loss. These distortions preclude attaining Pareto optimality in production and consumption and impair economies' efficiency of operation.

39. Theoretically, these distortions and the attendant welfare losses could be avoided by reliance on lump-sum and "pure profits" taxes which entail only an income effect (9). While exclusive resort to incentive-neutral taxes -- for example, by an omniscient authority tailoring poll taxes to the particular circumstances of individual taxpayers -- would maximise the efficiency of tax systems, this option remains, for various reasons, a mere theoretical curiosity, and such taxes play a negligible role in practice.

40. The three major taxes levied in OECD countries -- those on income and profits, those on goods and services and those on social security contributions -- drive "wedges" between the prices paid by users and received by suppliers in both the product and factor markets:

  a) **Personal income taxes** distort both labour/leisure and saving/ consumption choices. Income effects may offset or even reverse the effects on observed labour supply and saving, but this does not mean an absence of distortions. Tax codes also contain specific features which, intentionally or otherwise, favour certain activities over others.

Summary Table
REVIEW OF TAXATION INDICATORS

Indicator	Table	Objective	Disadvantages	Data source/availability
Tax revenues as % of GNP	1	Comprehensive measure of total tax burden	Reveals nothing of tax structure; problem of social security	RS (annual): all countries except Iceland
Structure of tax revenue	2	Compares and monitors shifts in tax structure	Does not indicate final incidence	RS: all countries except Iceland
Personal income tax structure: Rates spread Number of brackets	3	Indicator of potential distortions	Does not indicate relative importance of various brackets, statutory rather than effective rates	NRA
Tax burden of APW	4	Fiscal position of the average production worker (takes account of concessions, benefits)	MD, PCC	TP (annual): all countries except Iceland
Personal/corporate tax rates	5	Incentives to "incorporate" personal income	Doesn't take account of effective rates	NRA
Dividend treatment	6	Double taxation of dividends	MD	NRA
Corporate tax rate and tax allowances	7	Evidence of corporate tax distortions	Insufficient for estimating effective tax rates	NPA
Marginal effective tax rates on: Labour	8	Takes (limited) account of interdependencies	MD, SE: Multitude of capital tax rates -- meaningless to aggregate	NRA (but cf. DAFFE consultancy)
Capital	9			
Consumption taxes -- type and structure	10	Indicator of potential distortions	Rates not weighted for importance	NRA

Abbreviations: PCC = problems with cross-country comparability.
MD = model dependent.
NRA = not available on a regular basis.
SE = estimates subject to appreciable margin of error.

Sources: RS = Revenue Statistics of OECD Member Countries.
TP = The tax/benefit position of production workers 1984-87, OECD, 1988.

b) <u>Corporate fiscal systems</u> are not pure profits taxes and often result in part of income being taxed twice -- once as profits and again as personal income when profits are distributed. They distort investment and financing decisions and feed back through capital markets to influence saving. Inflation interacting with interest cost and depreciation allowances can aggravate distortions. Differences in taxation across countries can distort international investment patterns and capital flows.

c) <u>Taxes on goods and services</u> distort consumption and production patterns in ways that depend on both the distribution of tax rates and the pattern of consumer preferences. By reducing the consumption realisable from wages these taxes also distort work/leisure choices (10).

41. In summary, the distortions (non-neutralities) induced by existing OECD countries' tax systems entail substitution on the part of economic agents between work and leisure, consumption and saving, the consumption and production of different goods and services, capital and labour in production, and different types of capital within and across countries. The resulting pattern of resource allocation in turn implies a lower real value of output and well-being than could otherwise be attained. The severity of these distortionary effects depends on the level and dispersion of tax rates, on agents' behavioural responses as reflected in supply and demand elasticities for goods and factors and on the elasticities of factor substitution in production (11).

42. The extent of OECD countries' reliance on distortionary taxes reflects not only the inevitability of introducing distortions in the process of raising revenue, but also the importance which governments attach to criteria other than efficiency by which tax systems are judged. These other criteria include ensuring: that the distribution of the tax burden is fairly shared (horizontal and vertical equity); that revenues are raised in a an efficient manner (administrative efficiency); and that tax systems are not overly complex and do not impose excess compliance costs (simplicity). These criteria may not be mutually compatible. For example, efficiency may conflict with use of the tax system to redistribute income through progressive tax scales (vertical equity) (12). Fiscal systems are also deployed as instruments for correcting perceived market failures (for example, externalities such as pollution). The design of actual tax systems can thus be viewed as a "second-best" problem in welfare economics -- one of minimising aggregate deadweight losses subject to raising a given volume of revenue and satisfying a social welfare function. The trade-off between the various objectives can be construed as reflecting a society's particular set of value judgements as transmitted via the political process; this set is unlikely to be fixed either over time or space.

43. Imperfect knowledge of economic systems -- both the qualitative and quantitative aspects of structural relationships -- also sets severe limits on governments' ability to minimise tax-induced distortions. In theory, subject to certain simplifying assumptions, setting the rates of both income and commodity taxes at levels proportional to the reciprocal of the sum of the relevant individual demand/supply elasticities would minimise deadweight losses. In fact, the lack of reliable information concerning the large number

of relevant parameter values effectively precludes application of this rule as an operational tool for the design of tax systems (13).

ii) **Policy objectives and the thrust of recent reforms**

44. Optimal tax theory cannot provide fully operational guidelines for devising relevant indicators for monitoring progress in structural adjustment. Disagreements remain as to what constitutes an optimal system and, in any case, as indicated in the preceding paragraph, the necessary knowledge of structural relationships is seriously incomplete. An alternative approach is to focus on the more proximate goals of OECD governments' tax reform programmes as revealed implicitly or explicitly by the measures taken so far.

45. Prior to the recent period of reform, OECD countries' tax systems had generally evolved along lines incompatible with the generally-recognised criteria of efficiency, equity and simplicity. Tax bases had been eroded by fiscal concessions (14); marginal and average tax rates had been pushed up (15); the relative burden of taxation had been shifted from indirect toward direct taxation; and tax systems had become increasingly complex. The broad thrust of reforms undertaken over recent years by virtually all OECD countries in varying degree, has tended to reverse these trends, in particular by (16):

a) Reducing effective marginal rates of tax on income and capital. Deadweight losses increase sharply with the tax rate (see note 11). High marginal rates create powerful incentives for tax evasion and are found in practice to be the major source of tax-induced distortions.

b) Broadening tax bases by reducing personal and corporate fiscal concessions and bringing previously exempt revenue sources into the tax net. Tax expenditures are a major source of dispersion of effective tax rates.

c) Shifting the balance of the fiscal burden from direct toward indirect taxation and broadening the latter's base by shifting toward general consumption taxes. While it is apparent from the national-accounting identity (Y=C+S) that income represents the broadest base, its use implies that saving is effectively taxed twice. Numerous countervailing fiscal concessions have been designed to mitigate tax-induced disincentives to save.

Retail sales taxes (RST) and value-added taxes (VAT) are considered the most efficient and neutral forms of general consumption tax (17). While the two are economically equivalent, VAT appears to enjoy significant advantages, despite possibly higher administrative and compliance costs: VATs are in practice much more broadly-based than RSTs, largely owing to their easier application to services, and enjoy significantly greater revenue-generating capacity (18). VATs can more effectively provide for the exemption of producer goods, thereby avoiding the risks of distortions from cascading.

d) Reducing the number of tax brackets. Given the uncertainties concerning the values of cross-price elasticities, a uniform

indirect tax rate is likely to be less distortionary than a multi-rate system, except for clearly-identified low-elasticity goods (19). Social objectives can be better promoted by resort to compensatory measures such as income transfers than through differential taxation of goods and services.

Furthermore, there has been a trend toward closer integration of the personal and corporate tax systems (a shift from pure "classical" systems of dividend taxation toward partial or full imputation). The orientation of these reforms, which can be interpreted as indicating governments' views as to the desirable direction of change, has been compatible with promoting both efficiency and, by treating income from different sources more uniformly, also the fairness criterion.

iii) Tax indicators

46.   The indicators reviewed below, and shown in the summary table, should be thought of as possible guideposts for tracking progress toward the desirable features set out above. While stressing the efficiency criterion, the fact that they focus on the types of taxes which predominate in OECD countries' current fiscal systems implicitly recognises the infeasibility of eliminating all distortions (by, for example, complete reliance on lump-sum or pure-profits taxes). This approach also means that the indicators do not address such questions as whether a direct expenditure tax (which does not exist in any OECD country) would be preferable to a general consumption tax.

47.   Total tax revenue as a share of GDP (Table 1). This (macroeconomic) measure is the most comprehensive indicator of the overall tax burden associated with pursuing governments' spending programmes (20). The data are drawn directly from Revenue Statistics of OECD Member Countries, which ensures maximum possible comparability both between countries and over time. However, this indicator reveals nothing of the tax structure, nor of effective marginal tax rates which are relevant for economic decision-making. Furthermore, it is debatable whether social security contributions should be included (see note 20).

48.   Structure of tax revenue (Table 2). Table 2 constitutes one measure of the broad structure of tax systems. Such indicators can only be interpreted sensibly by reference to levels of taxation (as in Table 1) and, especially, to supplementary detail of tax structures as provided in other tables below. As with the other indicators presented here, the estimates do not provide a guide as to final incidence.

49.   Personal income tax rate spread and brackets (Table 3). Given that the amplitude of distortions depends, inter alia, on both the level and dispersion of tax rates, measures of the latter offer prima-facie evidence of the possible seriousness of distortions attributable to the personal tax system. However, the relative importance of the various brackets is not taken into account and the rates shown are statutory, rather than effective.

50.   Direct taxes paid at the level of average earnings of production workers (Table 4). This microeconomic-based measure of the average production worker's tax position varies according to marital status. The unmarried person alternative, which isolates the benchmark characteristics of tax

systems. is used here rather than the two-child family. While this construct appears the best currently-available representation of an average worker's tax position. it is far from ideal. A number of assumptions or simplifications underlie the calculations: in particular, non-standard tax reliefs (principally those which are expenditure-dependent and which can reduce average tax rates by up to 30 per cent in some countries) are excluded since information on these are available for only ten countries (and in some cases with a considerable lag). The data are based on production workers in manufacturing whose share in the workforce varies by country but has been trending downward (to about 25 per cent or less in OECD countries). Unearned income is not taken into account. For further details see OECD (1988b). Furthermore. the inclusion of social security contributions is controversial (see note 20).

51. **Top personal and corporate income tax rates (Table 5)**. The fact that top marginal personal income tax rates have typically exceeded corporate rates provides an incentive for individuals to "incorporate", even though non-tax factors probably dominate such decisions. However. the table compares statutory rather than effective rates. Furthermore, the unincorporated enterprise tax rate might be the more relevant alternative facing individuals.

A project being undertaken by the OECD's Directorate for Financial. Fiscal and Enterprise Affairs (DAFFE) on income subject to tax may provide a useful indicator of the proportion of household income subject to tax (data will become available around mid-1990).

52. **Treatment of dividends (Table 6)**. This concerns another aspect of the integration of personal and corporate tax systems, and provides _prima-facie_ evidence of fiscal influences on corporate financing (debt _vs_. equity, internal _vs_. external funds). The relative burden of taxation on distributed and retained profits depends upon the interaction between the tax system (degree of double taxation of dividends), the rates of personal and corporate tax and the allowance structure. Two indicators are shown: one qualitative and the other quantitative. The first lacks precision as it is an over-simplification to characterise corporate tax systems as either imputation or classical. The latter one is based on a number of more or less arbitrary assumptions (including choice of the personal marginal tax rate assumed -- the average production worker as specified in Table 4 is used). A project being undertaken by the OECD Secretariat may produce a more refined indicator towards the end of 1990.

53. **Corporate tax rates and tax allowances (Table 7)**. This table constitutes a (partial) indicator of how corporate tax systems diverge from a pure-profits tax (see note 9). The difference between the tax and allowance rates provides a measure of the degree to which the system of capital allowances is by itself distortionary (see the note to the table). However. the data are not sufficient for estimating effective tax rates on capital (see Table 9).

54. **Marginal effective tax rates on labour (Table 8)**. Distortionary taxes/subsidies which are specifically targeted to neutralise distortions elsewhere in the economy, represent explicit recognition of the important linkages between the different sectors of economies (21). For example, certain fiscal concessions are intended to compensate for the double taxation

of saving by classical corporate tax systems which do not provide for integration of the personal and corporate taxation. Thus, effective tax rates may diverge substantially from statutory rates because of tax reliefs (22).

55. The estimates, which should be considered as illustrative only (the Committee for Fiscal Affairs is currently undertaking their re-calculation), are based on a highly stylised model. The labour estimates take account of income taxes, social security contributions, payroll taxes, and consumption taxes (see source for further details). Property taxes are treated as capital levies and hence omitted. The calculations relate to a hypothetical average production worker (see Table 4 above) and illustrate the interplay of these taxes on labour considered both as an income recipient and as a factor of production. Marginal rather than average rates of tax are presented. While these are relevant for decisions to work more or less and to seek higher-paid employment, average rates would be more relevant for discrete decisions to be in or out of the labour force.

56. **Marginal effective tax rates on capital (Table 9)**. These estimates of effective tax rates on selected categories of capital employed in manufacturing industry are restricted to the supply of funds from domestic sources and are geared to a pre-tax rate of return of 10 per cent. The calculations involve the interaction between the above-mentioned taxes on labour (except the consumption tax) and the corporate income tax system. A uniform marginal personal tax rate is employed, even though rates may vary by financial asset type. Corporate tax systems typically discriminate between industry (manufacturing, commerce, etc.), asset type (structures, machinery/equipment, inventories), category of funds (debt, equity, retained earnings) and source of capital (households, tax-exempt institutions, insurance companies). The comparisons are very sensitive to inflation rates across countries (the table standardises on an assumed uniform 10 per cent rate), given the differential sensitivity of systems to price changes. For this and other reasons the data are illustrative only and subject to wide margins of error. Summary measures could be constructed (by weighting together asset-types and industries), but the wide dispersion in effective rates renders such summary statistics relatively meaningless.

57. The "tax obstacles" project being organised by DAFFE is examining the methodology used to estimate effective tax rates on capital income and proposes to extend the comparison to include an international dimension.

58. **General consumption tax types and structures (Table 10)**. This table reviews the types of general consumption tax in force as well as their relative importance and the number of rates applied. However, the different rates are not weighted for their relative importance.

59. **Other indicators**. Indicators which depend on quantitative estimates of behavioural relationships (elasticities, etc.), including those derived from general equilibrium models, have not been considered here. Studies that generate such indicators have been undertaken, but not as yet within the OECD, and not with a view to international comparison. Indicators based on such techniques focus on the fundamental issues of efficiency and welfare and are thus a valuable tool for the analysis of tax issues. They provide insights into the linkages between individual product and factor markets, and take account of what the government does with tax receipts. They can thus

disentangle problems of ultimate incidence -- a tax on corporate income may be shifted in varying degree either backward onto wages or forward onto prices -- and address the problem of the economy-wide (as opposed to partial) impact of tax measures (23). However, being model-dependent, they are less transparent than the more straightforward measures considered above and therefore have limitations as indicators for structural surveillance.

60. The comparison of statutory and macroeconomic-based estimates of effective rates could a priori provide a succinct indicator of the extent of tax-base erosion. Such estimates are expected to become available for personal taxation (see para. 54). As regards corporate income taxation, the severity of problems encountered deprives such estimates of their meaningfulness: i) in multi-rate systems, the relative importance of the different rates needs to be taken into account; ii) the fact that profits are net of losses will tend to bias estimates upward; iii) the year in which profits are earned may not correspond to that in which the relevant tax is paid; and iv) the treatment of tax credits due to shareholders for corporate tax paid varies across countries. For further details see OECD (1985). Similarly, estimates of effective indirect tax rates are subject to considerable measurement error.

iv) Assessment

61. Taxation, in contrast to the other areas considered in the present paper, has a natural and direct link to policy. Most of the indicators are accordingly much more closely related to policy than to performance in terms of the taxonomy outlined above in Section II. Problems of interpretation are still important, however. This reflects not only the difficulty of laying down hard-and-fast rules for optimal systems, but also the fact that governments' tax policy objectives generally involve a range of considerations, while the indicators are focused on features of tax systems related primarily to efficiency. Such a focus nonetheless seems appropriate, given that a common denominator which emerges from the tax reforms undertaken in the course of the past decade by OECD Member countries is a desire to enhance the neutrality of tax systems; that is, to reduce the efficiency losses arising from distorted incentives.

62. The above review of indicators shows that there are many different ways of encapsulating how tax structures operate. The objectives and drawbacks of the specific indicators are reviewed in the summary table. Certain of the measures are purely descriptive (of the tax level and structure) rather than analytical in the sense of being direct indicators of the extent to which policy induces distortions. But viewed in the context of the initial section on the desired properties of tax systems, it is possible to use such indicators, often combining one with another, to make judgements about likely policy impact. In this respect, tax indicators can play a useful role in the context of monitoring progress in structural adjustment.

63. How should the indicators be interpreted? They would seem to be a more useful guide developments within a country over time, rather than to cross country comparisons. The efficiency criterion of optimal taxation suggests that movements towards lower and less-dispersed tax rates are desirable. The closer integration of personal and corporate tax systems should also operate in the same direction. On the other hand, it would not

seem possible to set absolute norms; for example, the overall tax burden depends on revenue requirements (i.e. on expenditure decisions), and the interplay between the two sides of the budget are not considered in the present context.

64. The various indicators serve different purposes and no single composite indicator could capture all aspects of tax systems of relevance for monitoring purposes. There appears to be a trade-off between simplicity/ready availability on the one hand and complexity/operational usefulness on the other. The macroeconomic-based indicators of overall tax burden and its structure are readily available for virtually all OECD countries, but effective marginal tax rates are of greater interest as guidelines for measures to improve the neutrality of systems. However, it should not be forgotten that the estimates of even these are model-dependent and require a considerable data input. More generally, the calculation of indicators that assess the effects of policies on agents' behaviour or, a fortiori, on the efficiency of an economy, involves increasing complexity and uncertainty.

Table 1

TOTAL TAX REVENUE AS PERCENTAGE OF GDP

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Australia	28.2	28.2	27.1	27.9	29.0	29.9	29.9	29.2	30.7	30.4	31.0	31.3
Austria	38.5	39.1	41.4	41.0	41.2	42.5	41.2	41.1	42.4	43.1	42.9	42.3
Belgium	41.4	42.8	44.0	44.5	43.5	44.0	45.4	45.3	46.3	46.5	45.8	46.1
Canada	31.6	31.1	30.6	30.6	31.6	33.7	33.5	33.0	32.9	32.9	33.2	34.5
Denmark	41.6	41.9	43.4	44.5	45.5	45.3	44.5	46.5	47.6	49.0	51.0	52.0
Finland	38.8	38.2	35.1	33.3	33.0	34.6	34.0	34.0	35.5	36.8	38.1	35.9
France	38.7	38.7	38.6	40.2	41.7	41.9	42.8	43.8	44.6	44.5	44.1	44.8
Germany	36.8	38.1	37.9	37.7	38.0	37.6	37.4	37.3	37.5	38.0	37.6	37.6
Greece	27.3	27.6	27.9	30.1	29.4	29.6	33.4	33.3	34.9	35.2	36.8	37.4
Ireland	35.0	33.3	31.5	31.2	34.0	35.2	36.8	38.3	39.0	38.4	39.5	39.9
Italy	27.1	27.4	27.4	28.6	30.2	31.4	33.7	35.8	34.8	34.4	36.1	36.2
Japan	21.8	22.3	24.0	24.4	25.5	25.2	26.7	27.2	27.4	28.0	28.9	30.2
Luxembourg	39.2	42.5	43.5	40.2	40.9	40.7	40.9	44.9	43.2	43.6	42.8	43.8
Netherlands	43.4	44.0	44.6	45.0	45.8	45.2	45.4	46.7	45.0	44.9	45.9	48.0
New Zealand	31.0	33.4	32.0	32.9	33.1	34.1	35.0	32.8	32.9	33.9	34.9	38.6
Norway	46.2	47.3	46.8	45.7	47.1	48.7	47.9	46.8	45.8	47.6	49.9	46.3
Portugal	26.8	27.4	26.4	28.0	28.7	30.4	31.1	32.9	32.2	31.6	33.4	31.4
Spain	19.8	21.5	22.8	23.4	24.1	25.5	25.8	27.9	29.2	29.1	31.0	33.0
Sweden	48.2	50.5	50.9	49.5	49.4	51.1	49.9	50.6	50.3	50.2	53.7	56.7
Switzerland	31.3	31.6	31.6	31.1	30.8	30.6	31.0	31.6	32.3	32.0	32.5	32.0
Turkey	21.1	21.7	21.3	20.8	21.7	23.4	22.4	20.7	17.3	14.7	22.8	24.1
United Kingdom	35.5	34.8	33.2	32.8	35.3	38.7	39.1	37.6	37.8	37.8	38.5	37.5
United States	28.3	29.1	29.0	29.0	29.5	30.0	29.9	28.4	28.4	29.2	28.9	30.0
Unweighted average:												
OECD Total	33.8	34.5	34.4	34.3	35.2	36.0	36.4	36.7	36.9	37.3	38.2	38.8
OECD Europe	35.3	36.0	36.0	35.8	36.7	37.5	37.9	38.8	38.7	39.0	40.1	40.4
EEC	34.6	35.0	35.1	35.2	36.4	37.0	38.0	39.2	39.3	39.4	40.2	40.6

Source: OECD, Revenue Statistics of OECD Member Countries, 1965-1988.

Table 2

STRUCTURE OF TAXATION REVENUE IN 1987

(Per cent of total)

	1000 Income & Profits	2000 Social Security	3000 Payroll	4000 Property	5000 Goods & Services	6000 Other
Australia	55.7	–	5.4	9.2	29.8	–
Austria	28.0	32.3	5.9	2.3	32.3	1.3
Belgium	39.3	33.9	–	2.1	24.7	–
Canada	47.3	13.3	–	9.2	28.9	1.3
Denmark	58.5	3.7	0.7	5.1	33.9	0.2
Finland	49.5	9.0	–	3.2	38.2	0.2
France	18.0	43.0	1.9	4.7	29.3	3.1
Germany	34.0	37.3	–	3.2	25.4	–
Greece	17.0	32.8	1.1	2.5	46.0	–
Ireland	37.9	14.0	1.3	4.4	42.5	–
Italy	36.1	34.3	0.5	2.6	26.4	0.3
Japan	47.0	28.8	–	11.2	12.9	–
Luxembourg	42.4	28.4	–	8.8	24.4	0.3
Netherlands	27.4	42.7	–	3.6	26.0	–
New Zealand	59.4	–	0.9	7.0	32.8	0.7
Norway	33.1	23.7	–	2.5	40.1	1.0
Portugal	19.4	28.2	–	2.0	49.3	0.2
Spain	28.8	38.2	–	3.7	30.4	0.2
Sweden	41.3	24.2	4.5	8.7	24.1	–
Switzerland	40.3	32.1	–	8.5	19.1	13.3
Turkey	35.6	15.9	–	3.2	32.0	–
United Kingdom	37.2	18.1	–	13.2	31.4	–
United States	44.3	28.8	–	10.2	16.7	–
Unweighted average :						
OECD Total	38.0	24.3	1.0	8.5	30.3	1.0
OECD Europe	34.8	27.1	0.9	4.4	32.0	1.1
EEC	32.9	29.2	0.5	4.5	32.8	0.4

Table 3

PERSONAL INCOME TAX:
RATE SPREAD AND NUMBER OF BRACKETS

(Per cent)

	Central government taxes				1988/89	
	1975	1983	1988/89		State and local tax	Overall top rate
	Lowest and highest marginal rates			No. of brackets (a)		
Australia	20-65	30-60	24-49	4	-	49
Austria	23-62	21-62	10-50 (b)	6	-	50
Belgium	17-60	17-72	25-55	5	6-8	59
Canada	9-47	6-34	17-29	3	16	45
Denmark	19-44	19-44	22-40	3	28	68
Finland	10-51	6-51	11-44 (b)	11	16	60
France	5-60	5-65	5-57	11	-	50
Germany	22-56	22-56	19-53 (c)	Formula (d)	-	53
Greece	3-63	11-63	18-50	9	-	50
Iceland	..	25-50	35	1	-	35
Ireland	26-77	25-60	35-58	3	-	58
Italy	10-72	18-65	10-50 (b)	8	-	50
Japan	10-75	10-70	10-50 (b)	5	5-15	65
Luxembourg	18-57	12-57	10-56	24	-	56
Netherlands	20-71	17-72	16-70	3	-	70
New Zealand	19-57	20-66	24-33	2	-	33
Norway	6-48	4-41	10-29 (e)	3	5	54
Portugal	4-80	4-80	2-60	10	-	60
Spain	15-62	16-65	25-56	16	-	56
Sweden	7-56	3-54	5-42 (f)	4	30	72
Switzerland	1-13	1-13	1-13	6	5-34	47
Turkey	10-68	25-65	25-50	6	-	50
United Kingdom	35-83	30-60	25-40	2	-	40
United States	14-70	11-50	15-28/33	3	2-14	38

a)   Not including zero-rate band.
b)   From 1989.
c)   From 1990.
d)   The tax rate increases by linear progression.
e)   Including a surcharge of 6 per cent on income above 180 000 kronur.
f)   The Government has proposed to reduce the overall (central plus local) tax rate to a range of either 30 to 50 or 30 to 60 per cent by 1991.

Sources: OECD. Economies in Transition.

Table 4

DIRECT TAX BURDEN OF AVERAGE WORKER (a)

	1979				1983				1985				1987			
	Taxes on personal income	Social security paid by Employees	Total	Social security paid by Employers	Taxes on personal income	Social security paid by Employees	Total	Social security paid by Employers	Taxes on personal income	Social security paid by Employees	Total	Social security paid by Employers	Taxes on personal income	Social security paid by Employees	Total	Social security paid by Employers
Australia	21.9	-	21.9	-	22.1	0.4	22.6	-	21.9	1.0	22.9	-	22.2	1.3	23.4	-
Austria	9.3	14.2	23.5	20.5	9.4	15.1	24.5	21.9	10.2	16.4	26.6	22.0	9.3	16.4	25.9	22.6
Belgium	13.2	10.1	23.3	43.0	20.7	12.1	32.7	41.9	23.9	12.1	35.9	43.7	23.5	12.1	35.6	44.2
Canada	18.3	2.5	20.8	5.1	18.6	3.6	22.3	4.5	19.4	4.0	23.3	4.9	21.3	4.1	25.4	5.1
Denmark	35.7	4.4	40.1	0.8	39.4	5.4	44.8	3.2	40.0	6.3	46.3	2.9	44.0	2.0	46.0	3.1
Finland	29.2	3.0	32.2	7.0	29.5	2.7	32.2	5.5	30.5	3.7	34.2	6.1	30.6	3.4	34.0	6.7
France	8.5	11.8	20.3	-	8.4	14.2	22.6	-	7.4	15.2	22.6	-	6.0	16.7	23.3	-
Germany	16.0	15.6	31.6	15.6	17.1	16.8	33.9	16.0	18.1	17.0	35.0	17.0	18.6	17.1	35.7	17.1
Greece	1.4	10.2	11.6	18.7	3.0	13.2	16.2	21.7	3.2	13.2	16.4	21.7	3.9	13.3	17.2	21.0
Ireland	23.7	4.4	28.1	8.7	24.6	8.5	33.1	11.6	26.7	8.5	35.2	12.2	27.9	7.7	35.6	12.3
Italy	10.7	7.8	18.5	46.1	13.6	8.6	22.2	49.9	18.4	8.7	27.0	43.9	19.0	8.2	27.9	43.5
Japan	7.6	4.9	12.5	3.1	9.0	4.7	13.7	4.0	8.8	7.0	15.8	7.3	8.5	7.0	15.5	7.5
Luxembourg	17.4	11.9	29.3	13.0	17.4	12.1	29.5	14.0	16.7	12.1	28.9	13.4	14.0	12.2	26.2	14.7
Netherlands	14.8	20.7	35.5	24.0	12.0	28.4	40.4	24.2	11.3	26.7	38.0	23.8	12.0	25.6	37.6	23.9
New Zealand	26.0	-	26.0	-	26.6	-	26.6	-	27.9	-	27.9	-	23.6	-	23.6	-
Norway	25.7	8.8	34.4	16.8	23.3	9.6	33.0	16.2	22.7	10.1	32.7	13.6	22.7	10.9	33.6	15.0
Portugal	4.4	10.0	14.4	12.0	7.1	11.0	18.1	21.0	5.2	11.5	16.7	20.1	5.1	11.0	16.1	24.3
Spain	10.5	5.5	16.0	31.0	12.7	5.9	18.6	32.5	12.3	6.3	18.4	30.7	14.1	6.0	20.1	30.9
Switzerland	36.5	36.5	73.1	28.8	35.9	35.5	71.0	30.5	35.6	10.3	35.6	31.0	36.5	-	36.5	31.3
Turkey	10.6	10.3	20.8	10.3	11.4	10.1	21.5	10.1	11.2	10.3	21.5	10.3	11.0	10.3	21.3	10.3
United Kingdom	42.0	7.0	49.0	10.5	29.9	0.4	30.3	12.0	22.9	0.8	31.3	9.0	20.3	9.0	29.3	10.5
United States	22.9	6.3	29.4	10.0	24.4	9.0	31.4	10.4	22.3	9.0	31.3	10.4	20.0	7.1	27.2	
United States	20.6	6.1	26.8	7.6	23.0	6.7	29.7	8.0	22.8	7.1	29.8	9.2				
OECD Average	18.7	9.6	27.9	16.2	19.0	11.0	29.5	17.2	19.1	9.3	28.4	17.1	18.9	9.2	28.1	18.2

a) Direct taxes paid at the level of average earnings in the manufacturing sector expressed as a percentage of a single person's gross earnings.

Note: The figures shown in this table do not take into account the effects of non-standard expense-related reliefs, which are found in all countries' income-tax systems. In some countries the inclusion of these reliefs would substantially reduce the average rates of income tax shown in this table.

Source: OECD, The Tax/Benefit Position of Production Workers, 1984-87.

Table 5

TOP PERSONAL AND CORPORATE INCOME TAX RATES, 1988/89

(Per cent)

	Personal	Corporate
Australia	49	39
Austria	50	30
Belgium	59 (a)	43
Canada	45 (a)	44 (a)
Denmark	68 (a)	50
Finland	60 (a)	45 (a)(b)
France	57	42
Germany	53	50 (b)
Greece	50	..
Iceland	35 (a)	51
Ireland	58	43
Italy	50	46 (a)
Japan	65 (a)	50 (a)(c)
Luxembourg	56	36
Netherlands	60	35
New Zealand	33	28
Norway	54 (a)	51
Portugal	40	..
Spain	56	35
Sweden	72 (a)	52
Switzerland	56 (a) (d)	65 (d)
Turkey	50	..
United Kingdom	40	35
United States	38 (a)	34

a)   Combined national, State and local.

b)   From 1990.

c)   40 per cent national tax, to be reduced to 37.5 per cent in 1990.

d)   Taking account only of the principal local governments.

Sources: OECD, Economies in Transition.

Table 6

TREATMENT OF DIVIDENDS

	Method (a)	Indicator (c)(d)
Australia	→ Imputation	1.00
Austria	→ Imputation (b)	1.38
Belgium	→ Classical	1.29
Canada	Imputation	1.49
Denmark	Imputation	1.25
Finland .	→ Imputation (b)	1.45
France	Imputation	1.49
Germany	Imputation	2.27
Iceland	Classical (p)	
Ireland	Imputation	1.22
Italy	Imputation	1.56
Japan	→ Classical (b)	1.12
Luxembourg	Classical	
Netherlands	Classical	1.00
New Zealand	→ Imputation	1.00
Norway	→ Imputation (b)	1.23
Spain	Classical (p)	1.11
Sweden	Classical (p)	1.43
Switzerland		1.00
United Kingdom	Imputation	1.43
United States	Classical	1.00

a) **Key**: Classical system: economic double taxation; p: partial deduction for dividends paid; Imputation system: credit for company tax withheld.

b) Formerly split-rate system: lower tax rate on distributed income. → = recent change.

c) This indicator (θ as presented in King and Fullerton (1984)), measures the opportunity cost of retained earnings in terms of gross dividends foregone. Under the classical system θ = 1 and with full imputation at the corporate tax rate (t) = 1/(1-t); for example, if t = 0.5 then θ = 2.

d) As at 1983.

Source: OECD, *Economies in Transition*, and Hagemann *et al*.

Table 7

CORPORATE TAX RATE AND TAX ALLOWANCES, 1983

	Tax rate (Per cent)	Normal depreciation method (a)	Investment allowance or credit (1986)	Total allowance (b)(c) Equipment (Per cent)	Structures	Interest deductibility (d)
Australia	46	SL or AD*	-	38.3	7.7	F
Austria	55	SL or AD*	IA	47.3	31.3	F
Belgium	45	DB	IA	44.8	29.2	F
Canada	51	DB,AD	IC*	31.8	18.1	F
Denmark	40	DB(M),SL(S)	-	22.2	12.9	F
Finland	59	DB	-	22.4	12.0	F
France	50	SL,DB(M)	-	34.5	22.2	F
Germany	56	DB or SL	-	48.4	27.5	F
Ireland	50	AD*	-	55.0	55.0	F
Italy	46	SL,AD	-	24.2	12.9	F
Japan	53	DB or SL	-	36.0	16.1	F
Netherlands	48	DB or SL	-	41.0	24.0	F
New Zealand	45	DB(M),SL(S)	-	24.1	5.4	F
Norway	51	DB	-	36.7	20.6	F
Spain	35	DB or SL	IC	32.9	26.2	F
Sweden	52	DB(M),SL(S)	IA(m)	34.5	22.4	F
Switzerland		DB or SL	-	12.3	6.9	F
United Kingdom	52	DB or SL(S)	-	52.0	41.4	F
United States	46	AD	-	44.3	25.3	F

a) SL = straight line; AD = accelerated depreciation; DB = declining balance; M = machinery; S = structures; * being cut back.

b) At "average" inflation per dollar of investment.

c) The difference between the tax rate and allowances indicates the degree to which the system of capital allowances by itself is distortionary. Allowances smaller than the tax rate indicate that capital formation is _ceteris paribus_ taxed; allowances greater than the tax rate imply that it is subsidised. The standard formulation of the neoclassical user cost of capital is: $c = q[r(1 - t) + d]* (1 - k - t*Z)]/(1 - t)$ where c is the real cost of capital, per dollar of investment (which is equated in equilibrium with the present value of the net income stream generated by the asset); q is the relative price of capital goods; $r(1 - t)$ is the after tax cost of funds; d is the true economic depreciation rate on new assets; k is the rate of the investment tax credit; t is the statutory corporate income tax rate, and Z is the present discounted value (in dollars of the year of investment) of depreciation deductions stemming from the investment. The last term on the right hand side summarises the effect of the corporate tax system, where $(k + t*Z)$ is the value of the tax concession given by the government to the company. It can be seen that if $(k + t*Z)$ equals the statutory corporate tax rate t then $(1 - k - t*Z)/(1 - t) = 1$ and the corporate tax system is neutral, because the after-tax return is the same as the pre-tax one and the effective marginal tax rate is zero.

d) F = fully deductible; N = not deductible.

Table 8

MARGINAL EFFECTIVE TAX RATES ON LABOUR (a)

	Single worker			Single-earner married couple with two children		
	1979	1981	1983	1979	1981	1983
Australia	44.37	43.49	42.31	44.37	43.49	42.31
Austria	60.63	64.14	63.99	60.63	64.14	63.99
Belgium	64.61	65.95	66.66	62.19	62.05	61.65
Canada	43.32	45.09	42.72	41.12	42.96	42.72
Denmark	68.49	69.04	71.24	68.49	69.04	71.24
Finland	63.13	63.08	62.48	63.13	63.08	62.48
France	66.92	66.67	68.77	57.47	57.15	59.70
Germany	61.13	60.53	60.91	56.81	56.44	57.02
Ireland	55.51	57.78	70.21	55.51	57.78	63.80
Italy	56.28	59.54	62.66	56.28	59.54	62.66
Japan	40.50	43.90	43.68	35.93	39.41	39.93
Luxembourg	62.36	63.15	67.21	47.60	48.68	50.61
Netherlands	66.75	68.97	73.47	66.75	68.97	73.47
New Zealand	43.86	54.32	40.31	43.86	54.32	55.50
Norway	72.54	70.52	69.47	65.91	67.01	63.00
Portugal	44.03	46.75	46.94	40.08	43.25	44.29
Spain	43.94	45.38	46.66	43.94	45.38	46.66
Sweden	74.42	73.47	73.02	74.42	73.47	73.02
Switzerland	44.42	44.15	42.16	40.48	42.20	40.21
United Kingdom	51.53	53.44	54.53	51.53	53.44	54.53
United States	47.12	52.67	48.63	40.19	45.20	42.64
Average (Unweighted)						
OECD Europe	59.79	60.78	62.54	56.95	58.23	59.27
OECD Non-Europe	43.84	47.93	43.53	41.10	45.08	44.62
Total OECD	55.99	57.72	58.01	53.18	55.10	55.78

a)   At average production worker (APW) level of earnings and expressed as a percentage of total compensation including payroll taxes.

Source: McKee et al. (1986).

Table 9

ESTIMATE OF TOTAL MARGINAL TAX RATES ON CAPITAL IN 1983

Per cent of pre-tax rate of return
10 per cent inflation

		Equipment			Structures		
		Debt	New share issues	Retained earnings	Debt	New share issues	Retained earnings
Australia	HH	−14.9	83.9	26.6	30.5	108.5	63.2
	TE	−121.1	26.6	−59.1	−53.3	63.2	−4.3
Austria	HH	−10.4	52.5	40.4	15.4	70.8	60.2
	TE	−114.0	−20.1	−38.3	−75.5	7.1	−8.7
Belgium	HH	−0.5	−3.2	3.1	32.2	29.9	35.3
	TE	−158.0	−54.0	−46.1	−99.5	−12.6	−5.9
Canada	HH	3.3	41.4	58.7	5.8	43.5	60.6
	TE	−78.6	−24.6	−0.1	−75.0	−21.7	2.6
Denmark	HH	91.2	111.6	37.8	92.0	112.2	38.9
	TE	−51.7	−5.5	−172.6	−50.0	−4.1	−170.3
Finland	HH	78.6	40.1	42.7	81.7	45.0	45.9
	TE	−53.4	−128.8	−123.6	−47.3	−119.1	−117.4
France	HH	4.6	56.8	61.3	9.7	60.5	64.9
	TE	−97.4	−22.0	−15.5	−90.3	−16.7	−10.3
Germany	HH	−31.1	0.1	80.9	−27.3	3.4	82.9
	TE	−127.0	29.6	96.5	−121.7	32.4	98.2
Ireland	HH	−51.2	−75.8	−176.5	−17.6	−38.9	−122.3
	TE	−256.7	−301.4	−484.5	−195.6	−234.3	−386.0
Italy	HH	−37.5	38.8	54.5	−32.2	42.4	57.8
	TE	−71.5	−27.0	−4.9	−65.4	−21.9	−0.4
Japan	HH	−11.5	91.5	70.5	−12.7	90.9	69.7
	TE	−82.0	55.3	27.3	−83.7	54.5	26.3
Netherlands	HH	77.9	135.6	42.4	89.7	141.7	57.4
	TE	−118.4	22.7	−205.3	−89.6	37.7	−168.7
New Zealand	HH	28.8	105.9	63.1	22.3	102.2	57.8
	TE	−49.0	63.1	0.8	−58.5	57.8	−6.8
Norway	HH	30.6	99.6	66.8	34.3	102.1	69.8
	TE	−83.0	28.8	−24.6	−76.9	32.4	−19.7
Spain	HH	−44.5	27.7	8.5	−27.4	39.8	22.0
	TE	−107.6	−17.5	−41.6	−66.3	−2.4	−24.7
Sweden	HH	79.6	48.7	60.5	89.5	63.2	71.7
	TE	−99.7	−55.9	−140.5	−78.6	−34.2	−118.6
Switzerland	HH	32.7	62.1	38.2	34.3	63.4	39.8
	TE	−15.2	22.4	−8.2	−13.1	24.1	−6.0
United Kingdom	HH	−81.7	−0.1	21.6	−59.9	21.7	42.5
	TE	−216.7	−85.8	−54.9	−171.3	−54.7	−25.0
United States	HH	−32.2	82.7	32.6	10.3	104.2	64.4
	TE	−148.4	24.0	−50.8	−84.6	56.3	−3.4

HH : Households.
TE : Tax-exempt institutions.

Source: McKee et al. (1986).

Table 10

GENERAL CONSUMPTION TAXES -- TYPE AND STRUCTURE

	Present tax structure (1989)				
	Type (a)	No. of rates (b)	Rates (per cent)		
			Standard	Low	High
Australia	WST	3	20	10	30
Austria	VAT	3	20	10	32
Belgium	VAT	6	19	6	33
Canada	RST	1	12	--	--
Denmark	VAT	1	22	--	--
Finland	VAT	1	16	--	--
France	VAT	5	18.6	5.5	25
Germany	VAT	2	14	7	--
Greece	VAT	3	18	9	36
Iceland	VAT (c)	1	22	--	--
Ireland	VAT	3	25	2	25
Italy	VAT	4	19	2	38
Japan	GST	1	3	--	--
Luxembourg	VAT	3	12	3	--
Netherlands	VAT	2	19	5	--
New Zealand	GST	1	10	--	--
Norway	VAT	1	20	--	--
Portugal	VAT	3	17	8	30
Spain	VAT	3	12	6	33
Sweden	VAT	2	23.5	11	--
Switzerland	RST	1	6.2	--	--
Turkey	VAT	4	10	1	15
United Kingdom	VAT	2	15	0	25
United States	RST (d)	--	--	--	--

a) WST = wholesale sales tax; GST = general sales tax; RST = retail sales tax.
b) Excluding zero rate.
c) With effect from 1st January 1990 for Iceland.
d) Imposed by States; there is no federal general consumption tax.

Source: OECD, Economies in Transition, and Secretariat estimates.

IV. <u>TRADE</u>

by Grant Kirkpatrick

65. The general theme of this review is that while trade performance
indicators are useful in monitoring structural developments in trade, and may
be suggestive of failings in policy, it is the policy indicators that are most
relevant for the purposes of structural surveillance. The policy indicators
reviewed in this section are summarised on the next page.

i) <u>Indicating the stance of trade policy</u>

66. There is a wide spectrum of indicators of policy stance in the trade
area, which ranges from simple, relatively direct measures of the impact of
policy instruments to rather complex and indirect measures which attempt to
show the influence of policy after taking account of interactions and
feedbacks. The range of indicators is indicative of the fact that no one
measure is ideal and that there is a trade-off between simplification and
completeness. The indicators reviewed below are in general in order of
increasing complexity.

67. <u>Nominal tariff rates</u>. The most traditional indicator of trade policy
stance is statutory tariff rates, usually expressed in an <u>ad-valorem</u> form.
The measure reflects the use of policy instruments by directly measuring price
wedges which lead to welfare losses. Just how good the proxy is depends on
the data source. The most direct and accurate measure of the price wedge is
to be found in the tariff schedules themselves. But since the schedules
typically contain thousands of items, they are not very useful for analytical
or comparative purposes. However, computing average tariff rates from such
schedules is a complex and time-consuming business. As a result, a short-cut
method is usually adopted by computing "revealed" tariff rates from custom
receipts and import values (Table 11). Such revealed tariff rates can vary
significantly from average statutory rates.

68. For the purpose of international comparisons, some aggregation of
tariff rates is needed. A simple arithmetic average is not useful since it
takes no account of the relative importance of various products. It is
therefore necessary to select a weighting scheme. The first-best set of
weights would be the level of trade that would occur in the absence of
barriers, but this is unobservable. The two main practical alternatives are
the shares of imports or of domestic production. Neither choice is free from
bias. Using imports assigns a small weight to the highly-protected products,
but using domestic production weights over-represents them.

69. While the problem of aggregation is important, it is less important
than the need to measure the trade policy stance not only by reference to the
average level of tariffs but also by the <u>variability</u> of tariffs across goods.
This is because the cost of protection is a function not only of the average
tariff but also its variance (Michaely, 1977). Furthermore, data on tariff
rates can fail to convey the extent to which certain sectors, most notably
agriculture and services, have been excluded from the process of trade
liberalisation, because the most important instruments in these areas are not
tariffs. In addition, such data fail to convey the effects of protection on

Summary Table

REVIEW OF TRADE POLICY INDICATORS

Indicator	Table	Objective/Use	Disadvantages	Data source/Availability
Tariff rates, (explicit protection)	11	Indicator of trade policy stance. Indicator of price wedge and welfare loss.	Takes no account of intermediate products. Tariffs one of many instruments.	GATT data on tariff bindings. National tariff schedules. National import and tariff income data.
Coverage ratios of NTMs	12,13	To determine importance and spread of NTMs.	Provides no information on strength or importance of restriction. Does not indicate a price wedge.	UNCTAD data bank on NTM measures. Not always up to date.
Tariff equivalents of NTMs	14	To represent NTMs as tariff equivalents in order to indicate the strength and potential welfare loss from a NTM.	Based on price comparisons which involve strong assumptions about the comparibility of the goods. Measure is also sensitive to macro-economic conditions.	Micro studies of particular markets. Seldom available and only for selected countries. Eurostat and OECD PPP data bank.
Subsidy rate	...	To measure the price wedge between producer and consumer prices.	Problem in defining measures of a subsidy.	Data in sufficient detail seldom available.
Effective rate of protection (ERP)	15	Measure the overall impact of the protective system by taking into account the protection of intermediate inputs. Indicates protection afforded and likely direction of resource flows.	Strong theoretical assumptions required. Different treatment of exports, non-tradeables etc. render widely different results. Partial equilibrium.	Calculated for few countries. Depends on availability of explicit and implicit protection data.
Effective rate of assistance (ERA)	16	Explicitly incorporate subsidies as a determinant of protection to activities and therefore of resource flows.	As for ERP. Cost of raising corresponding tax revenue not taken into account.	Same problems as for subsidy and ERP.
"True Protection"	...	Account for more general equilibrium aspects of protection by allowing for changes in wages and real exchange rates.	Focuses on income redistribution rather than efficiency losses. Confined to a limited number of sectors. Requires econometric estimates of key parameters.	To date only used in NZ, Australia and LDCs. Data reasonably available.
Applied General Equilibrium calculations	...	Estimate directly resource flows and welfare losses in a general equilibrium setting.	Large amount of resources. Sensitive to model structure, parameters and model closure.	Same problems as for subsidies and NTMs. Other required data not available in all countries.

Note: The performance indicators reviewed in the text are not listed.

other sectors and the economy as a whole, issues that require more sophisticated approaches described later on.

70. **Export subsidies.** The corresponding indicator on the export side is an **ad-valorem** rate of export subsidy. This type of trade policy is mainly associated with agriculture. For other goods it is not so prevalent due in part to GATT and OECD rules on explicit subsidies, although export credits often contain a subsidy component. Subsidies, more generally, nevertheless remain a key policy issue and are considered again in terms of the effective rate of assistance and then in the section on Industry below.

71. **Non-tariff measures.** As is well recognised, price wedges introduced by tariffs and export subsidies are only one aspect of trade policy stance. Also important are non-tariff measures (NTMs) whose wide range is illustrated in Table 12. Because of their nature, diversity and lack of transparency, it is extremely difficult to quantify NTMs. Nevertheless, monitoring and surveillance of trade policy require some quantification of such measures, especially as they have tended to become more important in recent years at a time when average tariffs have tended to fall.

72. The best-known indicators of NTMs are the **coverage ratios** derived from the joint World Bank/UNCTAD data base (Nogués, Olechowski, Winters, 1986; Laird and Yeats, 1988) (24). An example of coverage ratios for the major developed economies, showing both the imports covered and the imports affected by NTMs is given in Table 13.

73. The fundamental weakness with the trade coverage measures of NTMs is that, not being measures of price wedges, they have no direct welfare implications in the same way that tariff and subsidy rates do, at least in a partial-equilibrium framework. One aspect of this is that no account is taken of the intensity of application of a given measure so that the easing of an NTM, for instance, has no effect on the indicator unless total removal occurs. Given this approach, whereby a good or sector is deemed to be either affected or not affected by an NTM, coverage ratios are especially sensitive to the level of primary aggregation (25), as well as being subject to the same aggregation problems that arise with respect to tariffs.

74. **Indirect measures of NTMs -- price comparisons.** NTMs can often be reduced to a **tariff equivalent,** thus providing a more welfare-oriented indicator and allowing them to be compared with tariffs. The approach is illustrated in Chart A. Initial imports are ab. An NTM which limits imports to cd is the equivalent to an **ad-valorem** tariff t. Under certain strong simplifying assumptions (perfectly elastic foreign supply, homogeneous products, etc.) the tariff equivalent could be measured by making a price comparison between the single world price (p) and the single domestic price (p*). This indirect approach introduces new uncertainties, however -- most obviously with respect to the appropriateness of these assumptions -- and there are further complications: however, even accepting these simplifying assumptions, the tariff equivalent or implicit tariff rate will vary with fluctuations in domestic demand and supply conditions. An example of such work is provided in Table 14 which focuses on the situation in Germany; similar comparisons are in principle calculable for all countries but require a significant resource input.

75.   Attempts to calculate tariff equivalents are fraught with practical difficulties, as well as theoretical ones. Summarising, there is generally no direct information on the prices that importers pay foreign suppliers and the domestic price data do not usually distinguish between domestically-produced and imported goods. A complicating factor, is that distribution costs may be greater for the importer than for the domestic wholesaler, meaning that such price comparisons overestimate the degree of distortion. Another is quality differences between imports and domestic substitutes. A third complication arises from the sensitivity of implicit tariff rates to fluctuations in nominal exchange rates. An appreciation of a country's currency will, for example, lower the world price in domestic currency and hence increase the ad-valorem equivalent of a quantitative import restriction. This has led to suggestions that averages of implicit tariff rates based on more than a single year should be calculated for trade-distorting measures that are sensitive to exchange-rate changes. But for all of these reasons, price comparisons may say less about trade policy and more about the terms of trade or other factors, in a world of differentiated products.

76.   Not every NTM has the effect of raising market prices and therefore of being measurable as a tariff equivalent through direct price comparisons. This applies particularly to subsidies. The appropriate definition of subsidies and the problems of measurement are discussed in Ford and Suyker (1990). The concern here is how information on subsidy flows can be incorporated in an indicator of trade policy which also has welfare implications.

77.   The calculation of trade price wedges can be extended to do this. If all goods are perfect substitutes, the domestic price of imports will be determined by the world price (pw), the ad-valorem tariff rate (t) and the tariff equivalent of NTMs (tn). Defining the subsidy rate (s) as the proportional difference between the domestic consumer and producer prices (pd) allows the relationship to be expressed as:

$$pd = pw (1+t)(1+tn)(1-s)$$

and the price wedge can be expressed as $(pd/pw) - 1$.

Hence, under strict simplifying assumptions, the trade policy stance can be derived from information on wedges between domestic producer prices and world prices which reflect the impact of individual policy instruments and are directly related to the cost of protection.

78.   The effective rate of protection. In contrast to measures of nominal tariffs or tariff equivalents, which look at one market in isolation, the effective rate of protection (ERP) is designed to measure the way in which trade policies affect production activity taking into account the protection system as a whole. The aim is to capture the effect of commodity protection on the value-added of an economic activity when inputs used in the production of that output are also protected.

79.   In practice, actual value-added of an activity is compared with value-added in the absence of domestic tariffs and tariff equivalents. In algebraic terms, the effective rate of protection (ERP) is:

$$ERP = (VA - VA^*)/VA^*$$

where VA and VA* are value-added (for individual products), with and without the trade policy. The trade policy here includes not only the protection afforded to domestic production of the good in question, arising from tariffs and NTMs, but also the protection afforded to inputs by trade measures. The problem in implementation comes down to the specification of the reference value added (VA*). The usual solution is to use "world prices" as the reference point; even though they are also affected by distortions, they nevertheless represent opportunity costs. An example of effective rates of protection using this method is provided in Table 15, which shows such measures for various selected manufacturing branches for four countries. The cross-country comparability is severely limited by different categorisation of goods and different timing of the various studies. It is notable that the variance across goods is rather large and that in general effective rates are significantly greater than nominal rates but may be negative when inputs to a sector are highly protected (see Table 16 for a comparison for Germany). A major practical drawback for structural surveillance is the initial resource cost involved in setting up the exercise and computing such measures across countries on a comparable basis.

80. **Effective rate of assistance**. The effective rate of protection only takes account of trade measures. A more comprehensive measure, the effective rate of assistance (ERA), also takes account of assistance on both domestic production and inputs by integrating subsidies into the framework. The ERA can be restated as the sum of the effective rate of protection and the effective rate of subsidisation, as indicated in Table 16 (26). The differences between the various measures of protection and assistance show how important it is to look at all trade-distorting measures together.

81. **Limitations of ERP and ERA-type indicators**. Even at the theoretical level, one can find much to criticise in these indicators. They assume perfect substitutability of goods in consumption and a Leontief production structure -- which are fairly strong assumptions, as are the assumptions made about other matters relating to non-tradeables, the treatment of exports, exchange rates and labour markets which are not discussed in detail here (see Corden, 1971; Tower, 1982; and Balassa, 1982). **A priori** many of these assumptions, especially those relating to substitutability, will tend to overstate the level of protection (policy stance). Moreover, at the theoretical level there are at least two methods for treating non-traded inputs and empirical results will be affected by the method chosen (see Corden, 1971; Balassa, 1971). These theoretical restrictions have been one reason for the use of applied general equilibrium models (as discussed below). With respect to empirical implementation, both of these measures require, at a minimum, input/output tables and appropriate information about tariff rates and tariff equivalents of NTMs. The problems arising from calculating both the explicit rate of protection (tariff rates) and the implicit rate of protection (tariff equivalents of NTMs), which are usually derived from price comparisons, have been described above.

82. The ERA is a more complete measure than the ERP. But neither is a substitute for indicators of tariffs and tariff equivalents of NTMs; they are complementary. Effective rates indicate the production or resource-pull

effects of policy measures but not the consumption effects, which must still be measured in terms of nominal tariffs.

83.   **General equilibrium approaches.** Dissatisfaction with effective-rate-type measures, particularly the substitutability assumptions underlying them, (Corden, 1985), together with their clear partial-equilibrium foundations, has led increasingly to the application of general equilibrium approaches to trade policy analysis.

84.   The need to assess the trade policy stance by taking into account interactions between goods and factor markets is recognised by measures of **"true protection"** (27). Such measures take into account the fact that the real exchange rate would be different in the absence of protection, either through the ramifications on factor prices or on the nominal exchange rate. As with the ERP and ERA measures, indicators of "true protection" are subject to certain theoretical limitations which are summarised in Clements and Sjaastad (1984) and Sjaastad (1980). Most importantly, calculation requires the estimation of a pass-through coefficient which reflects, *inter alia*, the degree of substitution between goods. Furthermore, as with the preceding indicators, it still focuses on the initial impact since it is calculated prior to any movements of resources. To analyse the latter one needs a full AGE model.

85.   AGE models link the policies to their combined effects on output and welfare (see Srinivasan and Whalley, 1986). The most important advantage of such models compared with all of the preceding measures is that the resource allocation effects are in principle fully captured. Such models nevertheless still depend on the availability of information on tariffs, subsidies and tariff-equivalents as inputs. In addition, they depend on an extensive array of parameters underlying the model. Given such information, it is then possible to compute estimates of a wide range of efficiency, income distribution and welfare measures, as well as to model the effect of quantitative restraints.

86.   The strength of the AGE approach lies in the richness of the results and, from the analytical point of view, its ability to measure resource misallocation and welfare losses (28). Nevertheless, it is not an all-purpose tool for use in structural surveillance. There are various theoretical issues concerning such work which are not taken up here (29). Perhaps more importantly, from the practical viewpoint concerning the use of AGE work in structural surveillance, is the fact that large resource costs are involved in such work and transparency is sacrificed. While valuable insights can be provided for detailed structural study, it may not be possible to envisage using AGE models for across-the-board cross-country surveillance work. Moreover estimates of the costs of trade intervention may not differ much from a partial-equilibrium approach. By and large, the general-equilibrium resource flows and effective-rate measures are significantly and positively correlated in the short run although the correlation decreases with increasing factor and goods substitutability, and as the time horizon is extended (i.e. greater factor mobility) (30).

87.   **Indirect measures of policy stance.** Many of the indicators discussed above rely on tariff- and subsidy-equivalents. As explained above, these indicators of policy are not only resource-intensive to compute but are also

based in certain cases on rather restrictive assumptions. For these reasons, a range of indirect indicators of policy stance has been developed, using a "normal" export/import ratios approach. Such indirect indicators involve specifying a proximate measure of trade performance together with an associated economic theory which describes what values this measure would "normally" take. The difference between the two is then ascribed to policy. The "normal" situation is frequently estimated via cross-section regression analysis. The trade policy stance relative to this normal situation is then derived in various ways by examining regression residuals, estimating country-specific dummy variables or by taking the ratio of the "adjusted" to the actual indicator. Anything which cannot be "explained" by the economic model is assigned to unusual trade policy stance.

88. Measures of this sort include the __trade-intensity ratio__ developed by, among others, Leamer (1988) and Saxonhouse (1983) and the __import-penetration measure__ used by Balassa (1986), Lawrence (1987) and Barbone (1988). Leamer himself was sceptical about how confident one could be about measuring the degree of openness by such measures (31). Given the uncertainty arising from the indirectness of the approach, these measures are not suitable indicators for structural surveillance, although they are likely to continue exercising a heuristic role in the policy debate.

ii) __Indicators of trade performance__

89. Whereas indicators of trade policy stance have a relatively clear purpose, the measurement of trade "performance" in the context of structural surveillance is far from clear. Such measures can only be related to policy in a very indirect way and cannot in general be separated from the broader concept of overall performance. Nevertheless, the Secretariat has used many trade performance indicators in its assessments of the efficiency of the wider economy. Where they are so used, it has usually been in connection with a range of other micro- and macroeconomic indicators. The key point is that the indicators are descriptive, not prescriptive, since there are no hard-and-fast criteria with which to relate them to efficiency.

90. The performance indicators can be subdivided into two groups: those based on concepts of market share and those focusing on the commodity composition of trade, with some overlap between the two. Indicators of trade performance based on __market share__ essentially side-step the issue of prescription by specifying a reference point in an __ad-hoc__ manner: a constant market share. Measures of this sort include indicators of "__export performance__" and indicators based on __constant market-share analysis__, which is an extension of the former approach. Using an identity which in itself has no behavioural content, the contribution to relative export performance is decomposed in terms of the separate contributions from: i) specialisation in product categories; ii) specialisation in national markets, for example: and iii) a residual which is taken to reflect "competitiveness". This latter can be further related to real exchange rates, to isolate a structural component of competitiveness.

91. The lack of a normative anchor in a constant market share analysis has led to another approach which is here termed __elasticity differential__. The perspective for this indicator is macroeconomic (Lawrence, 1987) although the basis is structural. The approach addresses the question of the extent of

tension between the objectives of growing at the same rate as partner countries, maintaining external balance, and avoiding a trend deterioration in the terms of trade. The greater the difference between the income elasticities for imports and exports, the more likely it is that the country's export/import ratio will change, under conditions of identical world and domestic growth and stable relative prices (OECD, 1989a). Trade "performance" is thus used as an indicator of structural adjustment problems -- a mismatch reflected in the income elasticities.

92. The hypothesis that income elasticities may indicate something about the structure of trade and growth leads to another approach to trade performance which focuses not on market shares but on the structure or composition of trade. The best-known of these indicators is the **index of intra-industry trade**, most closely associated with Grubel and Lloyd (1975). Intra-industry trade is not easy to measure since results differ according to the chosen level of goods aggregation. Nevertheless it is a major feature of trade between OECD countries that is not easily accounted for by "conventional" trade theory. The interpretation of such trade that motivates the index is based on economies of scale and product differentiation. Trade opens up the possibility for specialisation to reap economies of scale in production. But consumption will be spread over all product varieties, so that a country will simultaneously export and import similar products. The index then says something not only about technology and product differentiation but also about a country's relative "performance" in reaping these benefits, which probably involves important industrial structural changes. Once again, however, it is impossible to give any definitive normative interpretation to such a measure.

93. An additional measure of trade composition which is frequently viewed as an important indicator of trade and overall performance is **revealed comparative advantage**. Under freely-functioning markets and free trade, the commodity composition of trade or production will reflect the comparative advantage of a country which is fundamentally determined by its resource endowments and demand structure. By contrasting prior beliefs about this comparative advantage with that of the actual outcomes in the presence of distortions (i.e. revealed comparative advantage), an indication of performance may be gained.

iii) Assessment

94. Indicators of **trade policy** are crucial for surveillance in the trade area and structural policy more generally. In this context, it is useful to have indicators that not only reflect the impact of individual policy measures, as is the case with tariff rates, but also their likely overall impact once the operation of wider economic processes are taken into account. A key issue is the measurement of policy stance. Tariff rates, even where available in a digestible form, do not provide enough information on trade policy. It is also necessary to be able to quantify non-tariff measures and subsidies. It is important that work is pursued in both these areas in order to improve the data here and allow international comparisons. Without such information, none of the more refined, richer indicators of the effects of trade policy (ranging from effective rates to AGE results) can be derived.

95.   Measures of effective rates of assistance can take account of the impact of the effects of tariffs, NTMs and subsidies on trade in a partial-equilibrium framework. But estimates of the full effects, including measurement of resource misallocation and welfare losses, require AGE models. Applied general equilibrium modelling is theoretically appropriate, but the high resource costs and uncertainties involving empirical implementation mean that it plays a subordinate role in structural surveillance. This is unfortunate since such work relates policy indicators to the economic outcomes in which we are ultimately interested. Nevertheless, developments in AGE work in the trade area and increasing computational facility may well mean that such work will gradually be able to assume a more important role.

96.   The most useful practical indicator for structural surveillance is the effective rate of protection/assistance (ERP/ERA). Practicality, however, is at the cost of theoretical simplification which must be taken into account when interpreting the indicators. However, implementation on a systematic basis requires the improved information on subsidies and on tariff-equivalents of NTMs, which is mentioned above.

97.   The indicators of **trade performance** discussed above are routinely used by national and international authorities (32). However, a major problem with such measures is to avoid pressures toward a mercantilist interpretation. This is particularly so with measures of competitiveness and market shares. The tendency toward a mercantilist approach -- the idea that losing market share is bad, gaining it is good -- should be seen as a symptom of a wider problem, the lack of a reference point. This weakness means that the trade performance indicators **per se**, though saying something about the structural performance of the economy, give little or no information about the stance or impact of policy and are not therefore appropriate for the surveillance of trade policy.

Table 11

RECEIPTS FROM CUSTOMS AND IMPORT DUTIES ACCRUING TO OECD COUNTRIES
AS A PERCENTAGE OF THE VALUE OF THEIR IMPORTS, 1965-1987 (a)

	1965	1975	1980	1985	1986	1987
Australia	9.00	12.22	10.14	9.75	8.58	9.19
Austria	8.37	3.84	1.55	1.48	1.66	1.81
Belgium/Luxembourg	9.45	4.10	3.40	3.22	3.26	4.43
Canada	7.95	5.48	4.64	3.80	3.80	3.82
Denmark	5.73	2.78	2.03	1.77	2.11	2.05
Finland	10.00	2.81	1.79	0.98	1.13	1.16
France	11.30	3.00	2.22	2.10	2.53	2.63
Germany	8.74	4.95	3.55	2.54	2.85	3.08
Greece (b)	24.47	10.17	12.09	7.99	9.37	5.19
Ireland	6.64	3.55	3.24	3.18	3.04	2.93
Italy	9.62	0.62	1.12	1.93	2.71	2.98
Japan	7.55	2.96	2.46	2.42	3.33	3.62
Netherlands	14.94	4.03	3.23	2.96	3.88	4.07
Norway	4.02	1.32	0.85	0.75	0.84	0.95
Portugal (b)	32.31	16.84	7.58	5.22	8.23	10.04
Spain (b)	15.56	7.67	5.59	6.68	11.56	13.24
Sweden	6.26	2.37	1.72	2.64	2.86	2.80
Switzerland	6.85	2.95	1.56	1.27	1.49	1.44
Turkey	53.63	29.68	15.19	6.76	7.10	7.22
United Kingdom	8.02	3.63	3.87	3.32	3.76	4.13
United States	6.75	4.42	3.08	3.53	3.52	3.58
OECD average	9.22	4.26	3.19	3.12	3.47	3.72

a) In the case of EEC member countries, tariff income is expressed as a percentage of non-EEC imports.

b) Figures for the early years should be treated with considerable caution. They are not comparable with ratios for the years since accession to the EEC.

Source: Revenue Statistics of OECD Member Countries, 1965-1986; OECD Historical Statistics of Foreign Trade, 1965-1980; Monthly Statistics of Foreign Trade, December 1987.

Table 12

CLASSIFICATION SCHEME FOR DIFFERENT FORMS OF NON-TARIFF MEASURES ON IMPORTS

Type I measures (Trade distorting intent for imports)	Type II measures (Secondary trade restrictive intent)	Type III measures (Spillover effects on trade)
A. Quantitatively-operating	**A. Quantitatively-operating**	**A. Quantitatively-operating**
1. Global import quotas	1. Communications media restrictions	1. Government manufacturing and distribution monopolies covering products like armaments
2. Bilateral import quotas	2. Quantitative advertising restrictions	
3. Restrictive licensing		2. Government structural and regional development policies affecting trade
4. Liberal licensing	**B. Operating on prices/costs**	
5. Voluntary export restraints	1. Packaging and labelling regulations measures	3. Ad hoc government balance of payments measures
6. Embargoes		
7. Government procurement	2. Health nd sanitary regulations	4. Variations in national tax schemes
8. State-trading practices	3. Safety and industrial standards	
9. Domestic-content regulations	4. Border tax adjustments	5. Variations in national social insurance systems
	5. User taxes and excises	
B. Operating on prices/costs	6. Customs clearance procedures	6. Variations in allowable capital-depreciation methods
1. Variable import levies	7. Customs classification procedures	7. Spillovers from government-financed defence, aerospace and non-military projects
2. Advance deposit requirements	8. Customs valuation procedures	
3. Anti-dumping duties	9. Exchange restrictions	8. Scale effects induced by government procurement
4. Countervailing charges	10. Disclosure regulations	
5. Subsidies to import competitiors	11. Government-provided enterpreneuship research and development financing and related aids for import-competing industries	9. Variation in national standards regulations and practices
6. Credit restrictions on importers		10. External transport charges and government sanctioned international transport agreements
7. Tax benefits for import competitors		11. Port transfer costs
8. Discriminatory internal freight costs		
9. International commodity agreements		
10. Orderly-marketing arrangements		

Table 13

ANALYSIS OF THE CHANGE IN DEVELOPED COUNTRY IMPORTS FACING NON-TARIFF BARRIERS: 1966 TO 1986

IMPORTER	Imports covered by 1986 non-tariff barriers				Imports affected by 1966 and 1986 Type I and II NTBs (a)				
	Type I NTBs (a)		Type I + II NTBs (b)		1966 NTBs		1986 NTBs		
	% of imports covered	Value of imports covered ($ million)	% of imports covered	Value of imports covered ($ million)	% of imports affected	Value of imports affected ($ million)	% of imports affected ($ million)	Value of imports affected	% of manufactures affected (c)
All countries	15.9	118 740	27.2	204 716	25.3	29 510 (b)	48.0	355 532	58
European Communities	18.6	60 797	29.8	97 173	20.8	14 695	54.1	169 153	56
Belgium-Luxembourg	10.4	2 304	32.6	7 222	30.5	2 185	74.5	16 504	69
Denmark	6.6	599	18.6	1 687	4.6	174	37.2	3 374	46
France	51.5	31 425	62.5	38 137	16.1	1 995	81.6	49 793	61
Germany	12.1	10 074	21.0	17 484	24.1	3 996	40.9	34 052	59
Greece	11.7	515	15.2	670	n.a.	n.a.	25.8	1 136	47
Ireland	9.0	230	20.4	523	1.8	15	39.5	1 012	41
Italy	9.2	4 690	14.5	7 392	26.9	2 439	30.1	15 347	68
Netherlands	13.2	4 090	33.3	10 319	31.1	1 135	78.6	24 356	58
United Kingdom	11.1	6 870	22.2	13 739	15.8	2 756	38.1	23 579	44
Finland	32.4	4 469	43.2	6 037	15.2	227	51.3	7 076	28
Japan	14.4	19 043	36.9	48 798	31.4	3 648	43.5	57 525	50
Norway	12.5	1 908	12.5	1 909	31.0	778	23.2	3 543	22
Switzerland	17.4	5 267	40.7	12 320	19.2	783	50.1	15 166	39
United States	11.9	27 256	16.8	38 179	36.4	9 379	45.0	103 069	71

a) See Table 3 for a listing of Type I non-tariff barriers.

b) We have employed World Bank unit value deflators to express the 1966 affected trade values in terms of 1986 prices. The results suggest that the $29.5 billion 1966 estimate is equivalent to about $100.4 billion in 1986 prices. The corresponding figures for the EC, Japan and the United States are: $50, $12.6 and $37.8 billion.

c) Taken from Table 4, Lairds and Yeats, SITC 5 to 8 less 68.

Table note:

The actual 1986 NTB trade coverage ratios for total imports of the industrial countries listed above have been decomposed into trade coverage ratios for some of the more important types of non-tariff barriers. These ratios (shown in parentheses) are as follows: tariff quotas (1.2); variable import levies (2.4); antidumping and counterveiling duties (1.2); reference import prices (0.5); minimum import prices (1.3); "voluntary" price restraints (0.5); special import taxes (0.7); import authorization requirements (4.1); non-automatic import licensing (4.1); quantitative restrictions other than MFA or textile quotas (4.7); "voluntary" export restraints or volumes (5.3); MFA restrictions (2.2); other quantitative textile restrictions (0.5). Trade coverage ratios for other Type II NTBs were not calculated. See Tables 6 and 7 for a similar decompositon of U.S. and Japan's trade barriers.

Source: S. Laird and A. Yeats, "Trends in non-tariff barriers of developed countries", World Bank Working Paper, WPS 137, December 1988.

Table 14

ESTIMATES OF AD VALOREM TARIFF
EQUIVALENTS OF BORDER TRADE BARRIERS (INCLUDING TARIFFS) IN GERMANY

Industry	Implied ad valorem tariff (year)	
Agriculture	54.0	(1980-1982)
Food and beverages	26.7	(1972)
Coalmining	47.4	(1985)
Iron and steel	20.0	(1982)
Textiles	26.4	(1985)
Clothing	32.0	(1980 1984)

Source: Weiss et al., Trade Policy in West Germany, Mohr, Tübingen, 1988.

Table 15

EFFECTIVE TARIFF PROTECTION IN SELECTED COUNTRIES

(Per cent)

Industry	Japan (a) 1987	Germany (b) 1985	New Zealand (c) 1987-1988	Australia (d) 1984-1985
Beverage, tobacco, food	104	(e)	79	6
Manufacturing (selected branches)				
Chemicals	12	10	19,39	27
Petroleum refining	19	11	10,22	12
Rubber goods, leather goods	14	8	55,73,25	27
Stone goods	8	6	40	4
Iron and steel, rolling mills	19	10-6	11	17
Nonferrous metals	21	11	12	36
Pulp, paper, paperboard	9	14	20	30
Mechanical engineering	6	1	30	17
Road vehicles, shipbuilding	3	13-(-1)	71	66
Electrical eingineering	7	5	73	31
Precision mechanics, optics, watches	6	5	15	5
Metal products	6	6	45	22
Wood products	18	6	15,75	17
Printing	-1	1	4	12
Textiles	38 (f)	13	51	74
Clothing	28	23	125	243
Average all manufacturing	22	n.a.	26	22

a) Based on Y. Shouda, "Effective Rates of Protection in Japan", Japan Economic Studies, No.11, 1982. Reaggregation where possible to German input/output categories has been made. For further calculations see B. Heitger and J. Stehn, "Protection in Japan -- Interessendruck oder gezielte Industriepolitik", Die Weltwirtschaft, 1988. Shouda's estimates are based on offer rates of the Tokyo Round effective from 1981 to 1987.

b) F.D. Weiss et al., Trade Policy in West Germany, Tübingen, 1988, Table 7.

c) Syntec Economic Services, Industry Assistance Reform in New Zealand, April 1988.

d) Industries Assistance Commission, Assistance to Agricultural and Manufacturing Industries, 1987.

e) Only effective implicit rate of protection available: 75.0 per cent.

f) This figure is an average of spinning (20.4), weaving (61.8) and products (27.7) so the actual rate will be higher.

Table 16

COMPARISON OF NOMINAL PROTECTION, EFFECTIVE PROTECTION AND
EFFECTIVE RATES OF ASSISTANCE FOR GERMANY - 1985

(per cent)

	Nominal tariff (a)	Explicit effective protection (b)	Implicit effective protection (c)	Effective subsidis- ation (d)	Effective rate of assistance (e)
Intermediate goods					
Chemicals	6.5	9.8	8.6	2.4	11.0
Petroleum refining	2.8	10.7	10.7	5.0	15.7
Rubber goods	6.3	8.0	7.0	3.8	10.8
Stone goods	4.2	6.1	4.9	0.3	5.2
Iron and steel	4.7	9.7	40.8	24.4	65.2
Nonferrous metals	5.3	11.2	9.4	2.8	12.2
Foundries	5.2	7.6	4.4	1.0	5.4
Drawing mills, cold rolling mills	5.2	6.1	-2.0	0.6	-1.4
Wood	5.1	16.1	15.7	2.9	18.6
Pulp, paper, paperboard	5.9	14.2	13.1	1.2	14.3
Investment goods					
Structural engineering, rolling stock	4.1	3.1	-1.3	1.7	0.4
Mechanial engineering	4.1	1.6	0.6	3.1	3.7
Electronic data processing equipment	5.9	9.8	9.1	2.1	11.2
Road vehicles	10.0	12.7	10.7	1.8	12.5
Shipbuilding	2.4	-1.2	-4.7	24.6	19.9
Aircraft, aerospace	6.5	14.1	14.1	20.8	34.9
Electrical engineering	5.5	5.1	4.8	3.4	8.2
Precision mechanics, optics, watches	5.6	5.2	5.1	2.3	7.4
Metal products	5.6	5.7	2.7	1.7	4.4
Consumer goods					
Plastic products	6.1	7.1	6.5	1.9	8.4
Precision ceramics	5.1	5.6	5.5	2.8	8.3
Glass and glass products	5.9	7.8	7.6	2.4	10.0
Musical instruments, toys sporting goods, jewellery	7.2	8.9	8.5	1.3	9.8
Wood products	5.4	6.5	5.7	1.3	7.0
Paper and paperboard products	8.9	19.8	19.5	3.7	23.2
Printing	2.7	0.9	0.8	4.5	5.3
Leather, leather goods, shoes	6.1	7.2	6.8	0.9	7.7
Textiles	9.7	13.3	48.0	2.4	50.4
Clothing	12.5	23.2	71.0	2.8	73.8
Average (f)	6.3				
Coefficient of variation (f)	0.365				

a) Most favoured nation.
b) Corden method.
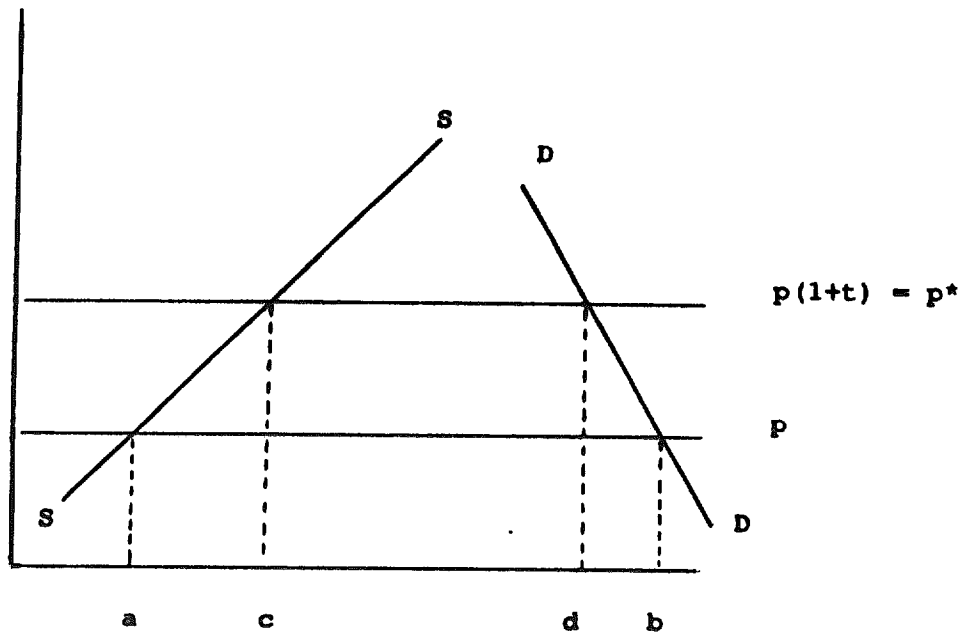c) Corden method. Includes the tariff equivalents of non-tariff barriers.
d) Refers to 1984.
e) Corden method. The effective rate of assistance is the sum of the implicit effective protection and the effective subsidisation.
f) Unweighted.

Source: Derived from F.D. Weiss et al., Trade Policy in West Germany, Tübingen, 1988.

Chart A

TARIFF EQUIVALENT OF A NON-TARIFF MEASURE

V. INDUSTRY

by Franciscus Meyer-zu-Schlochtern

i) The role of policy in the sphere of industry

98. Many government measures have an impact on industry. Yet the specificity of each country's situation -- in terms of national resources, the size of the domestic economy, its specialised industrial structures, its educational system, the institutional framework and the historical place governments have in economic life -- make it difficult to assess the government's role in the industrial adjustment process (33). The objectives of industry policy have also tended to be wide-ranging, although in recent years most emphasis has been put on promoting competition by allowing markets to determine prices and resource allocation. Because of the complexity of the industrial situation there has been a tendency for rather elaborate assessment and proliferation of different indicators, especially descriptive performance indicators of structural change. The intention of this section is to narrow the focus to those indicators of industrial policy and performance that are most commonly used in structural monitoring and surveillance and to try to assess their usefulness in that role. The indicators reviewed here are summarised in the table on the next page with their derivation being outlined in Table 17.

ii) Policy indicators

99. Since industry is influenced by so many aspects of government policy, a first problem in identifying policy indicators for structural surveillance is to establish the key areas of government involvement. All governments are involved in taxing and spending. Insofar as taxation impinges on industry, indicators of tax policy are relevant. On the spending side, the clearest areas of government involvement are industrial subsidies and support for research and development (R&D). More generally, government influences the environment in which industry operates through its policies in the area of competition. Since indicators of tax and trade policies were considered in previous sections, this section is limited to a review of subsidies, R&D and competition policy.

Industrial subsidies

100. Industrial subsidies are considered at length in the paper by Ford and Suyker (1990) which has already been referred to in Section IV. There is no need to repeat the details of that paper here, but it is useful to review the main points relevant to indicators for structural surveillance. The principal barrier to carrying out a comprehensive analysis of industrial subsidies is the lack of suitable data. The measurement issue is not just one of the availability of raw data -- although that is a problem in many cases -- but rather one of how to analyse the economic effects of a wide range of subsidy instruments. Since subsidies not only transfer income but also change relative prices and induce a reallocation of resources, one needs to be able to measure the benefit to the recipient and its effects on the incentives he faces. In practice, the ease with which this can be done depends to a large extent on the nature of the subsidy.

Summary Table

REVIEW OF INDUSTRIAL INDICATORS

Indicator	Table	Objective	Disadvantages	Data source/availability
Subsidies, of which:				
i) Cash grants	18	Measuring government support programmes	Covers only around half of the support programmes	National accounts
ii) Gross cost	...	As previous instrument	Covers more than cash grants but still many subsidies excluded; shows neither actual cost for government nor monetary support	Government budget
iii) Net cost	19	As previous instrument	Heavily depending on past soft loans	Government budget
iv) Grant equivalent	20	Measuring the financial consequences of support programmes for recipient	Detailed description of support programme is needed to calculate the indicator	Government budget and detailed description of subsidies (e.g. loans)
Net profit rate	...	Determining rents for capital	Difficult to distinguish efficient sector with high profits from monopolistic sector with economic rents	National accounts data or micro-economic data at the firm level
Tobin's q	...	Same as previous instrument	Same as previous instrument	Same as previous instrument
Herfindahl index	...	Concentration index in a specific market	Difficulty in determining the exact boundaries of the market to be analysed	Company accounts
R&D support programmes	21	Establishing financial government aid for R&D	Similar problems as with subsidies since R&D aid is sometimes given in the form of soft loans or tax concessions	Government budget, OECD scientific and technological indicators data bank
Patents	...	Illustrating capacity to innovate	Difficult to arrive at a weighting scheme to obtain a meaningful total since patents do not have the same importance	OECD scientific and technological indicators data bank, National statistics and WIPO
Shares of production, value-added and employment in respective totals	...	Indicator of structure of the economy	Difficult to interpret, many measurement problems	National accounts, industrial and employment statistics
Productivity	...	Performance indicator; normally a high growth is seen as desirable	Many measurement problems	National accounts, industrial and employment statistics
Salter curve	Chart B	General indicator of industrial policy	Slope of curve to be interpreted with care	Company accounts

101. Direct cash grants to firms are the most easily measured subsidies. This is broadly the definition used in the System of National Accounts, so that international comparisons are possible on this basis (Table 18). For many countries these grants are also available at a disaggregated industry level in input/output tables. However, estimates from other sources shown in Tables 19 and 20 suggest that direct grants amount to only half of total subsidy payments so that national accounts may give a seriously incomplete picture of overall subsidisation.

102. Broadening the definition of subsidies to include other instruments, such as soft loans, loan guarantees and tax concessions is difficult because there is no simple mechanical way to express these different types of subsidy on a comparable basis. Several methods have been designed to try to put these instruments on a common base and to obtain indicators which contain a wider area of policy instruments than just the cash grants.

103. Some information about these instruments is available from government budgets, since these cover expenditures on some (but not all) support programmes, in addition to cash grants. These data are on a gross budget basis, meaning that they are total (annual) budgetary expenditures on programmes deemed to be subsidies. But such expenditures are usually on a cash-flow basis. For example, government loans are compiled as the total principal paid out in a year, which overstates the actual subsidy component. Another drawback is that government budgets normally give information about a limited number of subsidy instruments.

104. The Directorate for Science, Technology and Industry (DSTI) is in the process of collecting data on a wide range of subsidy instruments. It is also looking at the viability of calculations of net cost. This approach, which has been followed by EFTA, uses government budget data to calculate the cost to the government less any income received. The net cost of soft loans is the accumulated principal from past loans multiplied by the interest rate the government has to pay to borrow, minus the subsidised interest payments on the past loans. This calculation shows the net cost to the government of its commitments (see Table 19 for some global results of the EFTA study).

105. These measures look at the budgetary implications of subsidies rather than focusing on their distortionary effects. To obtain a better idea of the latter effect, all subsidy instruments need to be reduced to their grant equivalents -- the grant that would just compensate the recipient for the loss of the subsidy -- or the producer subsidy equivalents (PSEs) (34). The grant equivalent of a soft loan, for example, is equal to the principal multiplied by the difference between the market rate of interest facing the firm and the interest rate demanded by the government. The sum of the grant equivalents for each subsidy instrument is an appropriate monetary measure of the financial support provided by direct and indirect subsidies. An average "subsidy rate" can be calculated by taking this total and dividing it by nominal GDP or by sector output. In practice, data limitations often dictate the use of alternative calculations or, in some cases, rule out reliable estimates altogether. Despite such difficulties, the European Commission has estimated grant equivalents for most of the subsidy instruments and programmes in the EC (Table 20), although support from the EC itself was not included (EC, 1989a). Such estimates also give a less than complete picture to the extent that marginal rates of subsidy differ from average rates and to the

extent that the design of programmes provides incentives to expand output or favour particular inputs -- that is, capital, labour or R&D.

106. Disaggregation by sector is essential to assess the effects of subsidies in distorting the pattern of output. For certain individual countries detailed sectoral data are available which allow the calculation of grant equivalents by industry. Germany publishes an official bi-annual report on federal support programmes and an annex gives some details about subsidies of the eleven Länder. The report describes developments in recent years and lists about 300 different programmes with their published goals, their legal grounds and their perceived effects. Kaminov (1989) published subsidy rates for the United States's federal business support programmes based mainly on federal budget documents. Moroz and Brown (1989) estimated grant equivalents for Canada. If structural surveillance is to make progress in this area, it is important that such work be harmonised by international agreement on the definition of subsidies and estimation methods.

107. If estimates of price wedges or subsidy equivalents can be made on a sectoral basis, they can then be combined with an applied general equilibrium model to calculate the efficiency, income distribution and welfare effects of subsidies. The principal barrier to such analysis is usually lack of appropriate data and the amount of resources required to develop suitable models. Nevertheless Weiss et al. (1988), using detailed subsidy data collected by the Kiel Institute (Jüttemeier, 1987), and the WALRAS study, using PSEs (Martin, et al., 1989), have both proved that such analysis is possible where suitable data exist.

Competition policies

108. The review of competition policies generally involves a detailed examination of the institutional and legal environment in different countries, as provided for instance by work in the OECD Directorate for Financial, Fiscal and Enterprise Affairs (DAFFE) (see OECD, 1989g and 1989h). But such detailed reviews cannot easily be summarised in simple indicators. This section first outlines some general points about how to identify competitive markets and then reviews the material that is available in the areas of anti-trust legislation, privatisation and deregulation.

109. Judging competitive markets. The standard theory of competitive markets does not say much about the composition of economic activity. When factor prices are equalised across industries, and hence firms have hired factors of production up to the point where their marginal product equals their costs, then an optimal allocation of resources over industries is realised. It follows that there are no efficiency gains for government policies to alter the composition of output if markets are competitive. The question is how to assess whether the competitive ideal is being approximated, and, where it is not, whether intervention is likely to improve the situation, taking account of second-best considerations and inherent uncertainties. Intervention can, however, further efficiency in the presence of market imperfections that drive a wedge between the marginal productivities of factors in different uses. The problem is to identify such wedges and other ways in which the functioning of the market is hampered. A lot of the detailed work of two OECD Directorates (DAFFE and DSTI) is concerned with such

issues, underlining the fact that one needs knowledge of the market or sector concerned in order to be able to assess structural policies in industry.

110 One way to assess the significance of distortions in industrial markets is to examine the extent to which capital and labour receives abnormal returns in certain industries. For capital, one possibility is the **average after-tax rate of return on capital** calculated as the ratio of after-tax profits divided by the capital stock on an inflation-adjusted basis. Another indicator is **Tobin's q** or the ratio of the stockmarket value of the firm to the replacement costs of its assets. Both measures have been looked at by the OECD in the past, with the general conclusion being that measurement and other problems mean that interpretation of particular levels of each variable is a risky task which requires care and judgement (see Chan-Lee and Sutch, 1985 and Chan-Lee, 1986). In principle, similar calculations can be made to judge where returns to labour are abnormal, but again interpretation is difficult.

111. **Antitrust and merger policy**. The theoretical arguments about the costs and benefits of mergers do not allow a general statement for or against. The cost savings which might be obtained from increases in the scale of production (economies of scale) and the negative effects from creating or increasing monopoly power have to be balanced against each other. In general, the exercise of market power by a monopoly or an oligopoly results in a higher price and a lower output than would be the case in a perfectly competitive market. However, this theoretical conclusion does not lead directly to measures of market structure that could be taken as direct indication of the exercise of market power. There may be conditions when even a single producer in a market is effectively constrained to behave competitively under the threat of potential entry by others into the market. Moreover, the gains to an economy from very large firms or joint ventures arising from returns to scale in production, research and the capacity to absorb risk may exceed the efficiency losses from the exercise of market power.

112. Nevertheless, considerable work has gone into the development of indicators of market concentration that might lead to a presumption that market power is or is not present. Two issues have to be dealt with in the construction of such indicators. First, the relevant market has to be clearly defined; secondly, the degree of market power of leading firms in that market has to be estimated. In the U.S. merger guidelines (White, 1987) the relevant market is the market on which a lasting price increase can be established by firms selling on that market. In the EC proposals (EC, 1989b), no precise definition has been chosen.

113. One of the most useful measures of concentration has been the Herfindahl index as set out in Table 17. It reflects well the structure of the whole industry and it is strongly influenced by the shares of the largest firms, a point of particular importance in the measurement of potential monopoly power. In the United States, the merger guidelines use the index to indicate when mergers can be expected to be challenged. In the EC proposals, emphasis is put on whether mergers create or strengthen a dominant position. The market share created by the merger is an important consideration but Article 2 enumerates other structural features. Prominent among these are the openness to competition, barriers to entry and sufficient degree of interchangeability with other products. However, most of these criteria rely less on quantitative indicators and more on qualitative analyses. Comparable

indicators of concentration have not been calculated across countries, but would anyway involve difficulties of interpretation. It is not clear, for instance, that such an indicator would be appropriate in judging the contestability of markets where the spotlight should be on potential competition, a more elusive concept, rather than observed concentration.

114. **Privatisation and deregulation.** The aim of privatisation has been to increase efficiency through relief from non-commercial objectives and subjecting such corporations to competition. While some privatised corporations operate in highly competitive markets, others have natural monopoly in some segment of their activities. Where monopoly exists, profit-seeking cannot be presumed to lead to efficient results. It is then imperative for privatisation to be accompanied by adequate measures to reduce and to contain market power (Vickers and Yarrow, 1988). It is not easy however to establish the requisite criteria for measuring such factors. Thus, for example, profitability may be a key measure of productive efficiency, but high profits may also signal that competition in the relevant markets is weak (35). An important indicator for measuring the degree of direct government involvement in industry and hence the potential for privatisation is the share of publicly-owned enterprises in the industry total (for value-added, investment, employment and other factors).

115. To evaluate privatisation is hazardous, even in highly competitive markets. It raises problems similar to the measurement of performance in deregulated markets because deregulation generally exposes an industry to greater competition and the industry has to learn how to react to market signals. Work at OECD and elsewhere makes clear that it is impossible to derive any meaningful or reliable indicators of the effects of deregulation without thorough analysis of the way specific markets operate (36). For example, in the case of U.S. airline deregulation, comprehensive microeconomic analysis has been necessary to evaluate the different facets of deregulation (see OECD, 1988c, and Morrison and Winston, 1989).

Research and development expenditure

116. A vast amount of data related to research and development (R&D) expenditures and patents is presently collected and published by the OECD. This material is listed in the notes to this paper (37). Attention has been given to international comparability with general acceptance of a common methodology for the collection of the data, which follows largely the standard practice set out in The Measurement of Scientific and Technical Activities (Frascati manual), (OECD, 1981). R&D support is not only given on a cash basis but also as soft loans or tax concessions. The same problems are thus encountered in establishing a single indicator for government R&D expenditures as for subsidies.

117. The statistics by industry are useful in highlighting where R&D expenditures take place. However, an industry's own R&D expenditure does not measure well the total inputs of technology into its production process. It is thus not a good structural indicator for linking R&D expenditure to economic performance indicators since the industry originating the research may not be the industry benefiting from the innovations which emerge from it, as has been shown by work on Canadian patents data (see Evenson and Putman, 1988) (38).

118 Some frequently used R&D indicators are list in Table 17. Griliches (1989) discusses what inferences might be obtained from this type of data and warns against drawing hasty interpretations from a fall or rise in the indices. Table 21 gives total expenditures on R&D in per cent of GDP. The difficulties of interpreting these data can be seen by looking at the cases of the Netherlands and Switzerland, where a large amount of R&D is carried out by the multinationals who base research activities there. The results of this research are used in the production units of the multinationals all over the world and therefore should not be related exclusively to production in those two countries. These small countries with large R&D establishments of multinationals may be extreme cases, but international spillovers from R&D are likely to be important for all countries, both within multinational corporations and because of diffusion across firms in different countries.

119. There are several statistics which measure patent activity such as patent applications and patents granted. The latter depend not only on patent applications but are also influenced by bureaucratic procedures of the national patent offices (see Brunk and Demack, 1987). Some statistics show a fall in the patent/R&D ratios which has lead to speculation about a decline in the technological opportunities of research. However not all patents have the same importance. The quality or economic value of patents might improve. Series taking into account possible changes in the value are clearly superior to a simple patent count. Pakes and Simpson (1989) argue that patent renewals can provide an indicator of the economic value of patents. Another approach is to look at the number of times patents are cited to obtain a measure of their importance. While these suggestions have merit, there is no good substitute for detailed review of these issues by industry or sector since no single indicator is able to capture the effect of the government's influence on industry via R&D expenditure or its influence on patent activity.

iii) Performance indicators

120. Most indicators of industrial performance tend to be largely descriptive in nature. While it may be interesting to see, for example, a country's "score" on a particular indicator such as labour productivity, such a measure is only suggestive and not conclusive evidence of relative efficiency in that area since so many other factors need to be taken into account. Nevertheless, experience shows that such indicators, because they are relatively numerous and easy to calculate, are used frequently in the industrial area (39). The performance indicators can be subdivided into two groups. The first gives only a record of the structure of the economy and changes in it. To judge this record it has to be seen if progress is made towards a desired industrial breakdown, which may itself be difficult or impossible to define. The second group indicates developments which are commonly judged as good, such as growth of labour productivity and technical progress which are more closely related to ultimate objectives such as maximising potential output. The review below attempts a brief summary of the best known measures (40).

121. Share analyses. One frequently-used type of indicator in the industrial policy field is a descriptive indicator which measures the structure of the economy and changes in the structure over time. Such indicators, used in isolation, are normally not very useful indicators of

policy. but they are often used to assess performance and are sometimes used or misused to argue for changes in policy.

122. The main series are summarised in Table 17 and reviewed briefly here Production share statistics give a snapshot of the structure of industry, but provide no information on structural performance unless associated with other information. Industrial statistics (such as in OECD's Industrial Structure Statistics) include inter-industry deliveries but are often obtained from samples. While this means that they may not be complete, these data are sometimes preferred to National Accounts data because of their finer breakdown of manufacturing industry and because they are usually more appropriate in comparisons concerning foreign trade (41). Parallel employment shares by industry are also affected by measurement problems with household and establishment surveys and population census benchmarks being carried out using different criteria (see Elfring, 1988). There are also measurement problems with domestic demand shares, concerning imports and the risks of double-counting, which can only be avoided with input/output tables; these are rarely up-to-date and most often published only every five years.

123. The index of structural change seeks to shed light on the flexibility of an economy. It is computed as the average absolute change in the relative shares of the industries in value-added or production (see Table 17, item 15). While it quantifies the magnitude of shifts in the industrial structure, it cannot be used to make normative judgements about which country has the most flexible or efficient economy. Changes observed in the shares might, for instance, be caused by the introduction of foreign trade restrictions. This would put the newly-protected industries in a better position and their share in output might increase while that of other industries falls. The indicator might therefore show greater change for such a country compared with a free-trading country. It is thus difficult to interpret the results of this indicator, since it is not clear, a priori, whether it is better to have large or small resource shifts between industries.

124. Productivity measurement. Since the maximum non-inflationary growth of potential output is generally regarded as a key objective of policy it is natural that indicators of productivity should play a role in structural monitoring and surveillance. This is however an area where there are many statistical pitfalls. An extensive literature exists on the measurement problems encountered in the area, with a good overview of the problems encountered being given in Smith et al. (1982), Kendrick and Vaccara (1980) and Couwenberg and van den Noord (1985). The OECD's work on total factor productivity also dealt with measurement problems (Englander and Mittelstädt, 1988) and an international seminar was held at the OECD in June 1989 which was devoted to such issues (1989i).

125. The productivity measures used in such studies are calculated with statistics similar to those presented above for the calculated shares of output and employment. They thus suffer from the same limitations, or even more so, since productivity ratios combine employment and output data. Differences in coverage create additional computational difficulties. Such shortcomings become more serious when international comparisons are contemplated. Thus, while productivity seems an important aggregate variable to monitor, it would seem more a place to begin an assessment of performance than to end it.

126. _Salter curves._ Microeconomic data at the firm level are potentially a rich source for analysis of industrial policy but have been little exploited to date. An exception is the method developed by Salter, which is now beginning to be used in several countries to analyse structural policy (42). Salter constructed a graphical tool which catches shifts in the distribution of profitability between firms (Salter, 1966). In one version of his diagram, firms are ranked according to value-added per employee in relation to the wage cost per employee. This illustrates both the level and dispersion of companies' profitability. This dispersion of productivity or profitability of firms is interpreted as an indicator of the rate of diffusion of new techniques and thus of the structural policies and conditions that influence rate of diffusion. An example of a Salter curve is shown for Sweden in Chart B (43). Although Salter curves convey interesting information about dispersion and performance within an industry, the implications for overall economic performance are indirect, and the links to industrial policy _per se_ still more indirect. Thus they would not appear to be promising indicators for a broad surveillance process. The use of microeconomic data to construct such indicators on an internationally-comparable basis might nevertheless shed additional light on the peculiarities of a country and the effect structural policy might have on the economy.

127. _Relative sectoral growth indicators._ Comparisons of the observed rates of growth of output, factor inputs or productivity by sector, within countries or between countries, provide some important descriptive information about structural change. They do not, however, give a clear picture of relative sectoral performance in an economic efficiency sense. For example, the output and productivity growth rates for many sectors of the Japanese economy may have been _absolutely_ greater than those for the United Kingdom, yet for some of these sectors U.K. growth performance may have been _relatively_ better, given overall macroeconomic and external circumstances. The underlying question is therefore one of _relative_ sectoral performance and the standards against which this might be measured in an international context. The importance of this more disaggregated indicator is that the breakdown of economic activity in different branches allows for a more detailed evaluation of economic trends and a better insight into the effects of particular policies. In addition, the performance in a particular type of industry may be suggestive of some global tendencies in the economy. For example, a good performance in fast-growing industries might be an indicator for the flexibility of the economy.

128. One possible way to digest sectoral growth information is to consider the difference between the observed rates of growth for a particular sector in a particular country, and those which might have been _expected_, given the average growth rate of the same sector for all countries and the growth performance of the whole economy in relation to that of all countries. The rationale for such a measure is broadly analogous to that for measures of Revealed Comparative Advantage, used commonly in the trade performance literature (44).

129. The Secretariat has applied this method, using its international sectoral database (ISDB) by ordering sectors according to the average output growth rates for all countries in the sample (Meyer-zu-Schlochtern, 1988). Three equal-sized groups are identified, containing those sectors with low, average and high growth rates (45). This ordering is also applied to the

production factors -- employment, capital stock and the residual factor, total factor productivity -- so that it is possible to identify which factor follows output growth most closely and which is trailing behind. Relative sectoral growth rates of output and production factors over the period 1970 to 1985 are shown in Table 22. The important inference which emerges is that relative sector output performance over the period appears to have been largely associated with "residual" total factor productivity developments rather than the relative intensity of factor use, confirming the results of Denison (1967) and the review by Maddison (1987). It is notable that the relatively poor performance of the European countries in the fast-growing industries is due not so much to a lack of flexibility of production factors -- the growth rates for employment and capital stock are close to their "expected" values -- but to less rapid growth of TFP than elsewhere (sectoral details are given in Appendix C in Meyer-zu-Schlochtern, 1988).

130. This analysis has looked at growth rates over the period 1970-85. It would also be possible to take periods before and after an important deregulation or other change in industrial policy and to compare sectoral performance over the two periods to gain information about the effects of the new policy. Though such analysis can provide new insights into growth patterns and the working of the economy, in particular the way production factors have contributed to the relative performance of different sectors, it does not lead to simple unambiguous indicators. Indeed, it underlines the need for detailed study of industry policy and developments.

iv) **Assessment**

131. Many indicators are used to summarise structural policies and performance in industry, with the OECD itself being a particularly good source for internationally-comparable statistics (see, for instance, note 38). Yet the majority of these statistics are in some way measures of structural changes or sectoral growth rather than indicators of policy. As such, they have an important role to play in the analysis of industry, but because they are in general descriptive rather than prescriptive and are not closely linked to policies, they seem less promising as indicators in a surveillance process.

132. One important factor to emerge from this review is that statistical material can give wrong signals unless due account is taken of the way the data are constructed. Studies which have taken up this issue show that odd movements in aggregate indices often originate with the specific measurement methodology followed. Detailed knowledge of the methodology used is thus important in interpreting indicators constructed from these series. The DSTI work on the Structural Analysis (STAN) database is one example of how extending the range of information might be beneficial for more reliable international comparisons. Similarly, the DSTI's proposed work on subsidies may act as a catalyst to better internationally-comparable data. But from the pragmatic point of view, the question of whether more and better information could be boiled down to one or a few normative indicators seems quite a way down the road. The most important elements of future work in this area should be to get better data, across countries, in the ways suggested above.

Table 17

SUMMARY OF POLICY AND PERFORMANCE INDICATORS

i = industry   j = country   . = aggregate over industries or countries

Number	Name/Description	Derivation
1.	Subsidies	
	Cash grants (national accounts)	Subsidies expressed in per cent of value added or production by industry. Input/output tables contain the necessary data for production by industry.
	Gross cost	Sum of all government expenditures on subsidy instruments in per cent of value added or production by industry.
	Net cost	Sum of imputed current expenditures on subsidy instruments minus all interest repayments related to past subsidies in per cent of value added or production by industry.
	Grant equivalents	The sum of all cash grants that would just compensate a firm for losing a particular subsidy instrument again in per cent of value added or production by industry.
2.	Net profit rate (PROF) in industry i after tax (a)	$(PROF_{ij}-TAX_{ij})/(K_{ij})$
3.	Tobin's q	The sum of value of equity and debt less the value of short-term assets divided by capital stock (a).
4.	Herfindahl concentration index	$\sum (Y_{ij}/\sum Y_{ij})^2$ Y_{ij} is ouput of the firm i in country j. If output is mainly composed out of interindustry deliveries a better indicator for a firm's weight in an industry is the share of its employment in total employment of that industry.
5.	R&D expenditures of industry i in country j or patents (granted or applications) (PAT) as share of:	
	value added	$R\&D_{ij}/VA_{ij}$ PAT_{ij}/VA_{ij}
	production	$R\&D_{ij}/Y_{ij}$ PAT_{ij}/Y_{ij}
	investment	$R\&D_{ij}/INV_{ij}$ PAT_{ij}/INV_{ij}
6.	R&D personnel share of research scientists and engineers (R&DS) in total employment of industry i of country j	$R\&DS_{ij}/Z_{ij}$
7.	Industry's share in total R&D or patents	$R\&D_{ij}/R\&D_{.j}$ $PAT_{ij}/PAT_{.j}$

Table 17 (continued)

SUMMARY OF POLICY AND PERFORMANCE INDICATORS

i = industry   j = country   . = aggregate over industries or countries

Number	Name/Description	Derivation
8.	R&D expenditures or patents per employee (L) in industry i of country j	$R\&D_{ij}/L_{ij}$ PAT_{ij}/L_{ij}
9.	R&D expenditures compared to fixed investment (INV_ij)	$R\&D_{ij}/INV_{ij}$
10.	Patents over R&D expenditures	$PAT_{ij}/R\&D_{ij}$
11.	Production (Y) share of industry i in total production	$Y_{ij}/Y_{.j}$
12.	Value added (VA) share of industry i in total value added	$VA_{ij}/VA_{.j}$
13.	Employment (L) share of industry i in total employment	$L_{ij}/L_{.j}$
14.	Share of domestic demand for products of industry i in total domestic demand (M = imports, X = exports)	$(Y_{ij} + M_{ij} - X_{ij})/(Y_{.j} + M_{.j} - X_{.j})$
15.	Index of structural change	$\Sigma||(VA_{ij}/VA_{.j})_t - (VA_{ij}/VA_{.j})_{t-1}||$
16.	Labour productivity (K = capital stock at constant prices)	Y_{ij}/L_{ij}
	= total factor productivity multiplied by weighted capital/labour ratio	$Y_{ij}/L_{ij} = Y_{ij}/(L_{ij}^{\alpha} * K_{ij}^{\beta}) * (K_{ij}^{\beta}/L_{ij}^{\beta})$
17.	Total factor productivity	$Y_{ij}/(L_{ij}^{\alpha} * K_{ij}^{\beta})$
18.	Salter diagram	
	Y axis	Several variables are used: profit in percent of capital, value added per person, difference between value added and labour cost, return on equity.
	X axis	Firms are ordered according to the variable put on the Y axis; the cumulative amount of their output or employment is indicated on the X axis. Sometimes all firms are given the same weight, in which case the last figure on the X axis gives the number of firms in the sample (see chart for examples).

a) The capital stock is defined as the sum of net value of plant and equipment at replacement costs, the value of inventories plus investment in unconsolidated subsidiaries and intangible investments. For a detailed discussion of Tobin's q see Chan-Lee (1986).

Table 18

INDUSTRIAL SUBSIDIES (NATIONAL ACCOUNTS DEFINITION), 1970-1986 (a) (b)

(as a percentage of sectoral GDP at market prices)

	United States	Japan (c)	Germany	France	Italy (c)	United Kingdom	Canada	Austria	Belgium (c)	Denmark	Iceland	Ireland (c)	Nether- lands	Norway	Portugal	Spain (c)	Sweden	Australia	New Zealand
1970-74 (d)	0.3	0.5	1.6	...	...	...	1.2	...	...	3.2	1.7	...	1.2	4.7	...	...	2.8	1.0	1.6
1975-79 (d)	0.4	0.8	1.9	3.0	2.3	2.7	2.2	...	3.9	2.5	2.2	5.9	2.1	5.3	5.1	...	5.7	1.2	2.1
1980-84 (d)	0.5	1.1	1.8	3.2	2.6	2.6	3.2	3.0	4.4	3.2	2.5	...	2.6	4.9	6.4	3.8	7.5	1.6	1.2
1985-86 (d)	0.5	1.0	1.8	...	...	1.9	2.8	3.0	...	2.8	2.6	...	2.9	4.4	...	...	7.5	1.6	0.8
1970	0.2	0.5	1.2	...	...	...	1.0	...	...	2.9	...	...	1.2	4.5	...	...	2.4	...	...
1971	0.2	1.3	1.3	...	...	...	1.0	...	...	3.2	...	...	1.1	4.8	...	...	2.7	...	1.1
1972	0.3	...	1.7	...	...	...	1.0	...	...	3.2	...	...	1.2	4.8	...	...	2.9	...	1.4
1973	0.3	...	1.8	...	...	...	1.0	...	...	2.7	1.3	...	1.2	4.8	...	...	2.9	0.9	1.5
1974	0.3	...	1.8	...	...	...	2.1	...	...	3.8	2.1	...	1.2	4.7	...	...	3.1	1.1	2.2
1975	0.3	0.8	1.8	...	2.3	...	2.8	...	3.9	2.5	3.2	5.9	1.6	5.1	...	...	4.2	1.0	3.1
1976	0.3	...	1.8	...	...	...	2.1	...	...	2.8	1.7	...	2.2	5.3	...	...	5.6	1.1	1.6
1977	0.4	...	1.8	2.9	...	2.6	2.0	...	...	2.2	1.6	...	2.3	5.4	4.6	...	6.1	1.1	1.9
1978	0.4	...	2.1	2.9	...	2.6	1.9	...	...	2.4	2.3	...	2.3	5.8	5.3	...	6.3	1.3	2.2
1979	0.4	...	2.1	3.1	...	2.8	2.3	...	...	2.5	2.0	...	2.3	5.0	5.4	...	6.3	1.4	1.8
1980	0.4	1.1	1.9	2.9	2.6	2.9	3.3	...	4.4	2.9	2.1	...	2.4	5.1	6.2	3.8	6.5	1.5	1.7
1981	0.4	...	1.8	3.2	...	3.0	3.3	3.1	...	3.1	2.2	...	2.4	5.2	6.5	...	7.2	1.6	1.3
1982	0.5	...	1.8	3.2	...	2.4	3.2	3.1	...	3.5	2.7	...	2.5	5.0	...	...	7.8	1.8	1.2
1983	0.5	...	1.7	3.3	...	2.3	3.1	2.9	...	3.4	2.8	...	2.7	4.6	...	...	8.3	1.7	1.1
1984	0.5	...	1.8	3.6	...	2.6	3.3	2.7	...	3.1	2.7	...	2.8	4.4	...	...	7.7	1.6	0.3
1985	0.5	1.0	1.7	...	...	2.2	2.8	2.8	...	2.9	2.5	...	2.9	4.2	...	...	7.6	1.6	0.8
1986	0.5	...	1.9	...	...	1.6	...	3.1	...	2.6	2.6	...	...	4.6	...	...	7.4	...	...

a)   Total subsidies excluding subsidies to agriculture and food processing.

b)   No data available for Finland, Greece, Luxembourg, Switzerland and Turkey.

c)   Based on input-output data.

d)   Average of available years.

Source: OECD Annual National Accounts and additional information (see Appendix II.A).

Table 19

SUPPORT TO MANUFACTURING INDUSTRY (a) IN THE EFTA COUNTRIES
BY TYPE OF SUPPORT, 1984-1987

	Grants	Equity participation	Soft loans	Guarantees	Total	Total (as a percentage of GDP)
		(as a percentage of total)				
Austria	20.7	68.3 (b)	10.9	0.1	100.0	0.9
Finland	72.0	15.1	11.8	1.0	100.0	0.3
Iceland	26.6	0.0	32.7	40.7	100.0	0.1
Norway	60.4	11.4	26.9	1.2	100.0	0.6
Sweden	55.0	0.0	26.8	18.2	100.0	0.8
Switzerland	77.8	0.0	13.7	8.6	100.0	0.0
EFTA (c)	58.0	15.8	18.3	8.0	100.0	0.5

a)   Including mining, quarrying, gas and electricity sectors.
b)   Mainly support to State holdings.
c)   Computed on the basis of 1987 GDP/GNP weights.

Source: EFTA Secretariat, Government aid in 1987, 1988 (confidential; for internal use only); OECD Secretatiat estimater

Table 20

COMPOSITION OF INDUSTRIAL SUPPORT IN THE EEC COUNTRIES (a)(b), 1981-1986

	Grants	Tax expenditure	Equity participation	Soft loans	Guarantees	Total (c)
(as a percentage of GDP)						
Germany	0.3	0.5	0.0 (d)	0.1	0.0	0.9 (1.5)
France	0.2	0.1	0.3	0.5	0.1	1.2 (1.5)
Italy	2.4	0.4	0.6	0.1	0.0	3.5 (3.5)
United Kingdom	0.6	0.0	0.2	0.1	0.0	0.9 (1.3)
Belgium	0.7	0.0	0.4	0.1	0.2	1.4 (2.5)
Denmark	0.2	0.0	0.0	0.3	0.0	0.5 (0.5)
Greece	2.1 (e)	0.0 (e)	0.0	0.0	0.1	2.2 (2.2)
Ireland	1.3	1.7	0.3	0.1	0.0	3.4 (3.4)
Luxembourg	1.2	0.1	0.7	0.1	0.0	2.1 (2.1)
Netherlands	0.4	0.2	0.0	0.1	0.0	0.7 (0.7)
EEC 10	0.7	0.3	0.2	0.2	0.0	1.4 (1.8)
(as a percentage of total support)						
Germany	35	58	0 (d)	6	1	100
France	20	11	26	38	5	100
Italy	68	11	18	3	0	100
United Kingdom	69	4	18	6	1	100
Belgium	47	2	28	10	13	100
Denmark	43	0	1	52	3	100
Greece	95 (e)	0 (e)	0	0	5	100
Ireland	39	49	8	2	1	100
Luxembourg	57	4	35	4	0	100
Netherlands	60	25	1	13	0	100
EEC-10	47	23	14	14	2	100

a) Excluding supranational support.
b) Excluding energy (coal).
c) Figures in parentheses, including energy (coal).
d) Support considered to be negligible. No figures available.
e) Tax expenditures included in grants.

Source: EEC Commission, White Paper on Subsidies, 1989.

Table 21

R&D EXPENDITURE BY SOURCE OF FUNDS IN 1985

(Per cent of GDP)

	Business enterprise	Government	Higher education	Private non-profit	From abroad	Total
Australia (a)	0.32	0.78	0.01	0.02	0.01	1.14
Austria	0.63	0.61	..	0.00	0.03	1.27
Belgium	1.10	0.52	0.01	0.00	0.02	1.65
Canada	0.59	0.66	0.03	0.02	0.11	1.43
Denmark	0.62	0.58	..	0.03	0.03	1.25
Finland	..	..	..	..	..	1.50
France	0.94	1.19	0.01	0.01	0.11	2.26
Germany	1.67	0.99	..	0.01	0.03	2.71
Greece	0.09	0.25	..	..	..	0.34
Iceland	0.20	0.48	0.04	0.00	0.02	0.75
Ireland	0.38	0.38	0.00	0.01	0.06	0.83
Italy	0.50	0.58	0.00	..	0.04	1.12
Japan	1.94	0.59	0.26	0.02	0.00	2.81
Netherlands	1.08	0.92	0.00	0.03	0.05	2.09
New Zealand	..	0.66	..	..	..	..
Norway	0.84	0.74	0.00	0.01	0.03	1.62
Portugal (b)	0.12	0.29	0.00	0.03	0.01	0.45
Spain	0.26	0.24	0.00	0.00	0.03	0.53
Sweden	1.77	0.95	0.02	0.02	0.03	2.79
Switzerland (b)	2.27	0.61	..	..	..	2.88
Turkey	..	..	..	..	..	0.70
United Kingdom	1.07	0.98	0.01	0.04	0.18	2.29
United States	1.32	1.40	0.02	0.04	0.00	2.77
Yugoslavia	0.47	0.30	..	..	0.02	0.79

a)   1984.
b)   1986.

Source: OECD/STIID Database.

Table 22

RELATIVE SECTORAL GROWTH RATES

Differences between actual and calculated average annual growth rates
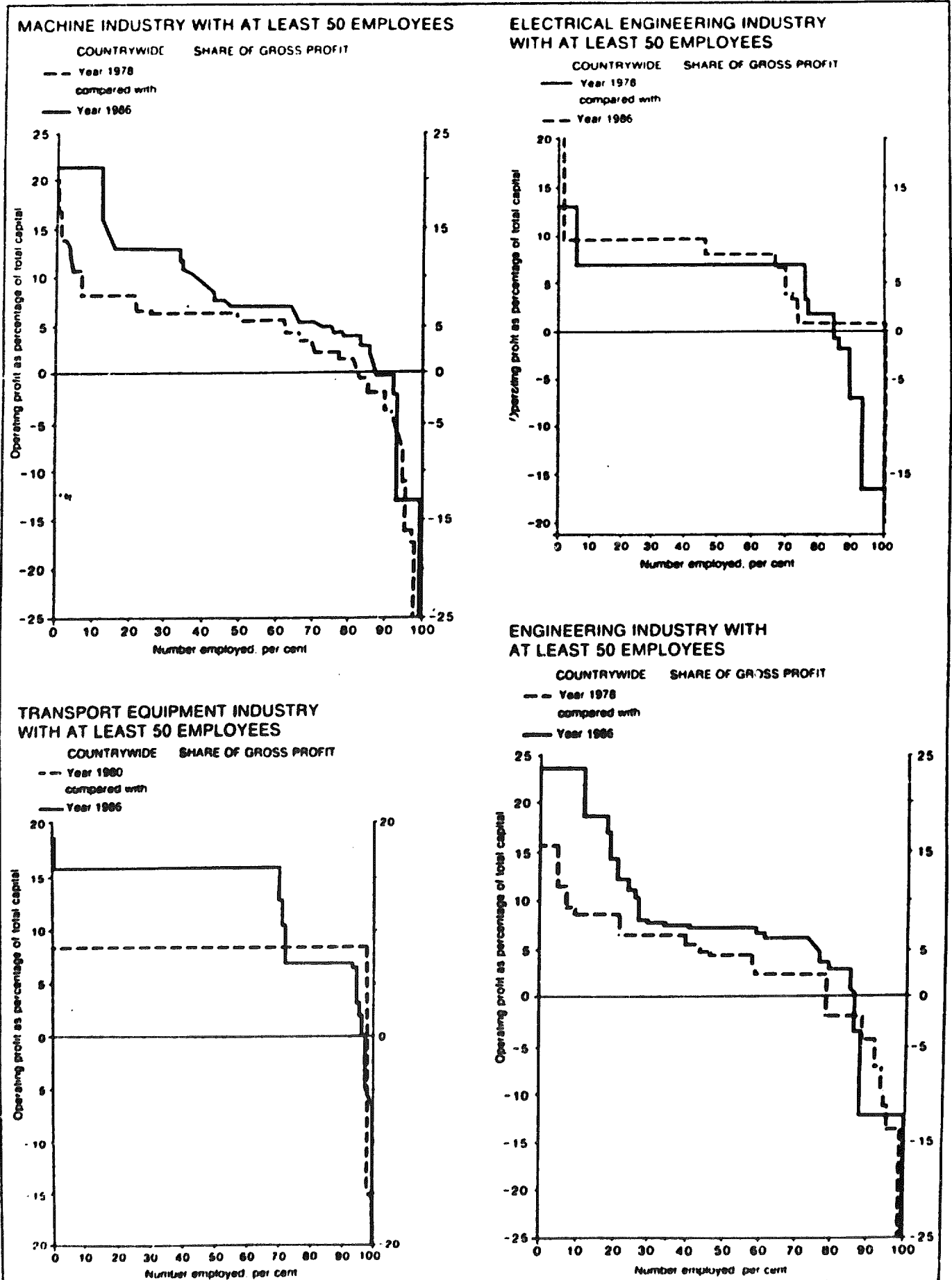for the period 1970 to 1985
Sectors ranked by sample value added growth class

	NOR	BEL	DNK	FIN	SWE	FRA	GER	ITA	UKM	CAN	AUS	USA	JAP	EU5 (a)	NORDIC
VALUE ADDED (VOLUME)															
Growth Class															
High	-1.25	0.47	-0.48	-0.35	-0.63	-0.10	-0.11	-0.59	-0.18	0.24	-0.09	-0.04	0.48	-0.19	-0.66
Medium	-0.55	-1.10	-0.84	-0.38	-0.52	-0.03	-0.35	0.31	-0.23	-0.38	-0.47	0.25	-0.13	-0.14	-0.57
Low	2.07	0.70	1.30	0.60	1.26	0.17	0.57	0.42	0.53	0.10	0.86	-0.24	-0.81	0.43	1.25
TOTAL FACTOR PRODUCTIVITY															
Growth Class															
High	-1.29	0.33	-0.01	-0.43	-0.12	-0.43	-0.44	-0.79	0.01	0.08	-0.28	0.12	0.51	-0.36	-0.32
Medium	0.11	-0.98	0.01	0.32	-0.08	-0.06	0.16	0.36	-0.14	-0.04	0.16	0.01	-0.11	0.02	0.05
Low	1.08	0.66	0	-0.01	0.20	0.44	0.45	0.39	0.13	-0.03	0.14	-0.19	-0.60	0.38	0.25
EMPLOYMENT															
Growth Class															
High	-0.36	0.25	-1.15	-0.47	-0.95	0.37	0.04	0.28	-0.33	-0.53	0.06	-0.03	0.14	0.07	-0.82
Medium	-0.62	-0.31	-1.11	-0.64	-0.64	-0.06	-0.39	0.04	-0.02	0.17	-0.48	0.27	-0.18	-0.12	-0.74
Low	0.76	0.10	1.46	0.65	0.98	-0.24	0.30	-0.16	0.30	0.30	0.66	-0.27	0.02	0.04	0.98
CAPITAL STOCK															
Growth Class															
High	0.64	0.09	-0.23	0.51	-0.13	0.05	0.21	-0.22	-0.11	0.14	0.41	0.08	-0.45	0.02	0.10
Medium	-1.43	0.16	0.17	-1.08	0.03	0.02	-0.49	0.15	0.09	-0.53	-0.78	0.21	0.24	-0.08	-0.57
Low	0.86	-0.30	0.26	-0.07	0.26	-0.13	-0.17	0.40	0.28	0.08	-0.23	-0.23	0.57	0.01	0.28

a) EU5 = Belgium, France, Germany, Italy and the United Kingdom.

Chart B

RETURN ON TOTAL CAPITAL

MACHINE INDUSTRY WITH AT LEAST 50 EMPLOYEES

COUNTRYWIDE   SHARE OF GROSS PROFIT

- - Year 1978

compared with

—— Year 1986

ELECTRICAL ENGINEERING INDUSTRY WITH AT LEAST 50 EMPLOYEES

COUNTRYWIDE   SHARE OF GROSS PROFIT

—— Year 1978

compared with

- - Year 1986

TRANSPORT EQUIPMENT INDUSTRY WITH AT LEAST 50 EMPLOYEES

COUNTRYWIDE   SHARE OF GROSS PROFIT

- - Year 1980

compared with

—— Year 1986

ENGINEERING INDUSTRY WITH AT LEAST 50 EMPLOYEES

COUNTRYWIDE   SHARE OF GROSS PROFIT

- - Year 1978

compared with

—— Year 1986

Sources: SIND (National Swedish Industrial Board) 1988, Statistics Sweden: Financial Statistics.

VI. AGRICULTURE

by Andrew Dean

i) Agriculture: a special case

133 In certain respects agriculture can be regarded as a sector-specific example of the various trade measures reviewed in Section IV. While comprehensive measurement of the whole range of trade protection and of assistance more broadly defined could be applied to the case of non-agricultural industries, this has rarely been carried out across time and for a range of countries. Such monitoring has, however, been carried out for agricultural assistance in many OECD countries by the World Bank and the U.S. Department of Agriculture. But the most comprehensive on-going exercise is the OECD's agricultural trade monitoring work.

134 The review of indicators in agriculture set out below focuses only on policy indicators. The reason for not covering performance indicators in the agriculture sector is that the main measures that one might consider monitoring are mostly covered already in the relevant parts of the sections on Trade and Industry (Sections IV and V). It is clear from those reviews that any performance indicators, though providing information on the environment in which policy operates, can only give indirect information for the purposes of structural surveillance.

135. The full range of measures of border protection and domestic assistance are witnessed in practice in the agricultural policies of OECD countries. This means that any assessment of agricultural policies has to take account of a very heterogeneous set of measures. Domestic and border measures are integral parts of the range of agricultural policies. Therefore it is not enough to focus just on border protection or just on government subventions, for example since those give only part of the story and mean that international comparisons would be misleading. On the other hand, it is difficult to add up the effect of a wide range of different measures and also to know where to draw the line on the policies that should be considered.

136. These issues have been tackled in the Agriculture Directorate at the OECD in responding to the 1982 Ministerial Trade Mandate which called for "...an analysis of the approaches and methods for a balanced and gradual reduction of protection for agriculture...." and for a study which "....should identify all measures implemented by governments, public bodies or private organisations which influence trade in a given commodity on a country-by-country basis" (46).

137. In response to this mandate, the Agriculture Directorate developed measures of agricultural assistance for OECD countries using the concept of producer and consumer subsidy-equivalent measures -- hereafter referred to as PSEs and CSEs -- which are described in the next section. It should be noted that while the PSE/CSE concept was specifically developed to estimate assistance to the agricultural sector, it is a method that can be applied to measure assistance to other sectors of the economy (47).

138. Choice of the PSE/CSE concept was determined by a number of considerations. Principal amongst these was the necessity for the measure to explicitly incorporate all domestic policy measures directly or indirectly affecting trade and not just border measures. Also important was the fact that the calculation of PSEs and CSEs was perceived as being; i) feasible for a wide range of OECD countries within the limits posed by data and resources. ii) relatively straightforward, and iii) easily understood by policy-makers, to whom it was addressed.

ii) Producer and consumer subsidy equivalents (48)

139. The PSE is an indicator of the value of the **transfers** from domestic consumers and taxpayers to farmers arising from a given set of agricultural policies. Analogously, the CSE is an indicator of the value of the transfers from domestic consumers to farmers and the subsidies paid by the government to consumers. Other policies that affect the agricultural sector are ignored in the PSE/CSE method. The "subsidy equivalents" are the monetary values of the whole array of policies included in the calculations.

140. **Coverage.** The PSEs/CSEs cover the assistance to output, inputs and value-adding factors, on a commodity-by-commodity basis, associated with **agricultural policy**. The wide range of support measures that is in principle included in the calculation of PSEs is indicated in an abbreviated classification of measures provided in Table 23. By far the most important element of support is market price support; it accounted for 75 per cent of assistance in 1988, compared with 10 per cent for direct and indirect income support and 15 per cent for all other support.

141. **The measurement of assistance.** In order to analyse the impact of policies on agriculture it is first necessary to quantify the level of assistance represented by each policy. There are two sources for the measurement of assistance. One source measures direct or implicit **budgetary payments** to the agricultural sector and to consumers of agricultural products. Such payments may or may not have a direct effect on prices received by farmers or paid by consumers. For example, deficiency payments raise farm incomes but do not directly affect the market price. Food subsidies lower the market price paid by consumers but do not directly affect the price received by farmers. Reduced levels of taxation and subsidised credit applicable to farmers in some countries are examples of implicit budgetary assistance.

142. The other source measures assistance arising from **market** support policies by means of a comparison of the "supported" domestic market price and another, unsupported domestic or external reference price. The price gap used to measure this support arises from import restrictions and export subsidies which raise domestic prices above those on the world market and reduce the quantity on the domestic market.

143. In most cases, total assistance to a commodity involves a combination of both budgetary payments and price comparisons. This is taken into account in the way the PSE and CSE are defined (49):

$$Total\ PSE = Q(P_D - P_W) + D - L + B$$
$$Per\ unit\ PSE = Total\ PSE/Q$$
$$\%\ PSE = 100(total\ PSE)/[Q(P_D) + D - L]$$

$$Total\ CSE = -C(P_D - P_W) + G$$
$$Per\ unit\ CSE = Total\ CSE/C$$
$$\%\ CSE = 100(total\ CSE)/C(P_D)$$

where:
- Q is level of production;
- C is level of consumption;
- P_D is domestic producer price;
- P_W is reference price;
- D is direct payments;
- L is producer levies and fees;
- B is other budget payments, direct or implicit;
- G is net budget payments to consumers.

144. **Levels of assistance shown by PSEs**. Summary results for PSEs in eight OECD countries, and the EC, which is treated as if a single country, are presented in Table 24. Details by commodity (six crops and seven livestock products) and by country are also available (50). The similar information available for CSEs shows the extent to which the transfers to producers captured in the PSEs are provided by consumers through higher prices. Such CSEs are generally lower than PSEs; in 1988 the total value of CSEs for all the countries covered was -$123 billion and the total value of PSEs was $15? billion (representing 45 per cent of the total value of production).

145. Because of the way in which PSEs and CSEs are defined, one has to be careful in interpreting year-to-year movements. The decreases in PSEs that occurred in 1988 -- the total falling to $157 billion from a peak level of $169 billion in 1987 -- were in the main not due to policy but the result of changes in world prices expressed in domestic currencies due to movements in exchange rates and developments in world commodity markets. Drought, in particular, was an important determinant of world price changes, particularly in the wheat and coarse grains sector. The effect of these changes in world prices was to narrow the gap between producer and external prices and thereby to reduce the level of domestic price support. Other factors were relevant; for example the tighter supply controls in the European dairy sector, in particular, contributed to firmer world prices and hence smaller price gaps for milk. Although this illustrates the fact that one must look behind the PSEs in order to understand changes in them, the fact that PSEs fluctuate when world prices change is itself an indication that domestic markets seem to be insulated from the world market.

146. The PSE or CSE estimates by themselves do not give a complete picture of all the transfers generated by agricultural policies -- they cover only about 75 per cent of agricultural output and exclude certain budgetary transfers. Table 25 gives estimates of the total transfers associated with all commodities and all agricultural policies. The total assistance measured in this way in 1988 for all the countries covered was $270 billion compared with the PSE estimate of $157 billion.

iii) Limitations of PSEs and comparisons with other measures of assistance

147. The PSEs/CSEs were developed so as to explicitly incorporate all domestic policy measures affecting agricultural trade, not just border measures. However, they have been developed in a pragmatic fashion with consideration being given both to the availability of data and resources and to consistency and clarity across countries and commodities. The PSE does indeed go much further than tariffs and other forms of border protection, since it includes subsidies and other forms of government support. But it does not go as far, in the area of protection, as measures of effective protection which cover all of the influences on income to agriculture arising from protection relative to free-trade value-added. Measures of effective assistance in addition cover various forms of subsidies not covered in the PSEs/CSEs. The PSEs include all producer price support, whether provided through the market or by direct payments, and subsidies given within the framework of agricultural policies that reduce input costs in agricultural production. They include policies which provide assistance to animal feeds in the livestock sector but do not include assistance to other non-agricultural material inputs.

148. The question has arisen as to whether policies which result in higher input prices and hence penalise producers should also be included, a device which would move the PSE to an effective rate of assistance. This approach has not been adopted, although it is fully recognised that the effective rate of assistance measure would lead to results which could more closely identify the incentive effects of policies than does the PSE. It would require a large increase in data to do this computation for a large number of countries and commodities. Moving one step further, it is also possible to move from the partial-equilibrium framework of PSEs to a general equilibrium framework where prices and quantities in the rest of the economy are not assumed constant. The Working Party will be familiar with the Secretariat's MTM modelling exercise and the incorporation of PSEs in the WALRAS model in order to estimate the economy-wide effects of agricultural policies (51).

149. The reference price. The definition of the external reference price has been the most controversial issue in the implementation of the PSE and CSE methodology because, in practice, it is the most important parameter in determining the magnitude and the trend in PSEs. Initial problems centred on the contention that reference prices are themselves distorted, and that a "true" measurement should be the world equilibrium price estimated to prevail in the absence of the policies concerned. Insofar as possible, reference prices are chosen from actual prices at a country's own borders or originate from countries whose own policies only lightly assist the commodity (any such assistance being netted out of the reference price) and who do not engage in export subsidisation. It is recognised, however, that the price received by a non-subsidising competitive price-taker will be largely determined by the behaviour of "large countries" which subsidise exports using the world market as a residual recipient of surplus production.

150. In principle the reference price should be the opportunity cost at a country's border of the commodity in question with the product chosen being representative of domestic production. But there is often a lack of homogeneity between domestic production and that available on world markets.

In part this is due to domestic policies which hinder the transmission of world price signals and thus minimise the competitive environment. In addition, there is usually a greater level of product transformation in production available on world markets, particularly on livestock products. In practice country specific or individual reference prices have generally been used because quality and definitional problems make it difficult for the homogeneity rule to hold for a large number of countries vis-à-vis one given external price. This sometimes results in reference prices which are apparently very different from country to country and has therefore led to some concern about the cross-country comparability of the estimated PSEs. Other concerns about comparability relate to more detailed issues of transportation costs, the point of price comparisons (the farmgate price is not always used) and the sparsity of information in certain areas of non-price support.

iv) Assessment

151. There are a number of measures of agricultural assistance, each of which provides a different perspective on the functioning and effects of agricultural policies; they are therefore complementary to each other. The PSEs/CSEs measure in monetary terms the extent of transfers to agricultural producers from consumers and taxpayers; they do not directly capture the potential distortions to resource allocation which must be analysed using different measures. However, price wedges can be derived from PSEs and these can in turn be used to analyse efficiency and welfare effects in either a partial-equilibrium model or an AGE model like WALRAS.

152. As with other measures of assistance, the PSEs/CSEs are based upon certain simplifying assumptions which condition their interpretation and application. They nevertheless allow relatively reliable statements to be made in terms of relative levels of assistance between countries and commodities and in terms of broad policy changes. The concepts and their practical calculation are relatively simple so that up-to-date estimates can be made which are easy to understand and to compare. Data sources are occasionally a constraining factor, especially for non-price support components such as interest-rate concessions.

153. The development of the PSE and CSE calculations within the OECD has led to the collection and dissemination among the Member countries of a large volume of policy information capable of being summarised in a single indicator representing the value of agricultural policy related transfers accruing to farmers. The measurement effort itself has fostered improved understanding of the relationships between domestic policy and border measures and has underlined the important role of the consumer in providing assistance to agriculture. It has also been an essential ingredient in making estimates of the efficiency costs of OECD agricultural policies.

154. One shortcoming of these measures for surveillance is that they are sensitive to non-policy related changes in market conditions. The declines in PSEs in 1988 illustrate that it is hazardous to extract trends from year-to-year changes. It might therefore be useful to develop a way of disaggregating PSE changes from year to year into policy and non-policy components. Work which goes in this direction is currently underway in the Agriculture Directorate. Conceptually this will involve calculating PSEs on the basis of

the previous year's reference price, as a means of isolating the impact on the market price support element (or deficiency payment element) of changes in domestic prices. Future work might also try to more precisely identify the incentive effects of agricultural policies, the PSE being moved towards an effective rate of assistance measure. In addition, the components of the PSE could be examined in terms of their effects on production, consumption and trade with the aim of moving towards alternative methods of support to farmers which are, as far as possible, "production neutral" or least-distorting to resource allocation.

155. The PSEs/CSEs are being used in agricultural monitoring work at the OECD and are being examined in the context of the Uruguay round of multilateral trade negotiations in the GATT. They have been drawn on in earlier surveillance reports prepared by the Economic Policy Committee and have proved useful in highlighting the scale of government intervention in this sector. They are thus already proven as useful indicators for structural surveillance. The various limitations described above mean that they must still be used with care. But the fact that they are up-to-date, broadly comparable across countries, measure in a relatively transparent way the assistance to agriculture, and are becoming accepted, albeit imperfect measures, means that they will continue to have a key role in the evolving surveillance process.

Table 23

PSE CLASSIFICATION BY MAIN TYPE OF MEASURE

(1) Market Price Support

- - two price systems
- - price premiums
- - import quotas/voluntary export restraints
- - tariffs/import levies
- - home consumption schemes
- - supply management (production/acreage quotas)

(2) Direct Income Support

- - direct payments (disaster relief, deficiency payments,
     insurance payments and direct storage payments)
- - levies paid by producers (negative support)

(3) Indirect Income Support

- - input subsidies (fuel, fertiliser, transport, etc.)
- - concession credit (interest subsidies)
- - capital grants

(4) Other Support

- - research, advisory, training
- - inspection
- - rationalisation and structures
- - processing and marketing
- - transport concessions
- - taxation concessions
- - provincial/State national expenditure in EEC

Table 24

PRODUCER SUBSIDY EQUIVALENTS (a)
(Average by country for all products)

	1984	1985	1986	1987 (b)	1988 (c)
Australia					
PSE ($ million)	1 069	1 092	1 306	1 146	1 182
PSE (per cent)	10	14	16	11	10
Austria					
PSE ($ million)	1 053	1 202	2 006	2 549	2 358
PSE (per cent)	33	39	50	53	48
Canada					
PSE ($ million)	4 419	5 075	6 437	6 204	6 158
PSE (per cent)	33	39	49	46	43
EC - 10					
PSE ($ million)	30 007	37 377	57 869	..	..
PSE (per cent)	33	43	52	..	..
EC - 12					
PSE ($ million)	..	..	64 409	71 265	66 642
PSE (per cent)	..	..	52	51	46
Finland					
PSE ($ million)	2 227	2 502	3 278	3 582	3 685
PSE (per cent)	60	67	70	71	70
Japan					
PSE ($ million)	21 666	22 181	34 218	35 643	36 726
PSE (per cent)	67	69	76	77	74
New Zealand					
PSE ($ million)	594	514	921	363	276
PSE (per cent)	18	23	33	14	8
Sweden					
PSE ($ million)	1 240	1 370	1 831	2 580	2 563
PSE (per cent)	38	40	54	61	58
United States					
PSE ($ million)	31 440	34 771	45 194	46 004	37 571
PSE (per cent)	28	32	43	41	34
All countries					
PSE ($ million)	93 715	106 083	159 601	169 337	157 161
PSE (per cent)	34	41	51	50	45

a) This table shows net PSEs; these are gross PSEs less the excess feed costs associated with market price support to the crop sector (to avoid double counting).
b) Estimates.
c) Provisional.

Source: OECD, Agricultural Policies, Markets and Trade: Monitoring and Outlook 1989.

Table 25

ESTIMATES OF THE COST OF AGRICULTURAL POLICY
($US billion)

	Net cost to the taxpayer (a)				Cost to the consumer (b)				Total cost			
	1983-85 Average	1986	1987 (c)	1988 (d)	1983-85 Average	1986	1987 (c)	1988 (d)	1983-85 Average	1986	1987 (c)	1988 (d)
Australia	0.6	0.7	0.6	0.7	0.4	0.4	0.4	0.3	0.9	1.1	1.0	1.0
Austria	0.5	0.5	0.9	0.9	1.2	2.5	3.3	2.8	1.7	3.1	4.2	3.7
Canada	3.2	4.3	5.1	4.5	2.8	3.5	3.5	3.4	5.9	7.7	8.6	7.8
EEC (e)	21.5	31.0	37.3	44.2	36.7	77.6	86.6	75.3	58.1	108.7	123.9	119.4
Japan	5.6	5.2	6.7	3.9	29.2	49.0	55.9	59.8	34.7	54.1	52.6	63.8
New Zealand	0.3	0.9	0.1	0.2	0.1	0.1	0.1	0.1	0.4	0.9	0.1	0.2
United States	45.5	60.8	55.4	50.4	24.2	31.1	30.6	23.4	69.7	91.9	86.1	73.8
Total of above countries	77.2	103.4	106.1	104.8	94.6	164.2	180.4	165.1	171.4	267.5	286.5	269.7

a)   Public expenditure for agriculture less budget receipts from tariffs.
b)   Impact of agricultural policies at the border (tariffs, quotas, etc.) on consumer prices.
c)   Estimate.
d)   Provisional.
e)   EEC-10 for 1983-85; EEC-12 for 1986-88.

Source: OECD, Agricultural Policies, Markets and Trade. Monitoring and Outlook, 1989.

VII. LABOUR MARKETS

by Axel Mittelstädt

i) Special features of the labour market (52)

156.   Three distinguishing features of labour markets in OECD countries need to be borne in mind when considering potential indicators. The first is the apparent imperfection of labour markets as compared with "spot" or auction markets. Labour markets are characterised by long-term explicit or implied contracts for many workers and heterogeneity of wages, job content and working conditions. The extreme heterogeneity of jobs and individuals makes for high transaction costs in matching workers to jobs and renders tenuous the concept of a "market wage", though market conditions are clearly an important factor influencing the wages of individuals and groups.

157.   The second feature is the direct effect labour markets have on living standards and social relationships. Partly determined by government regulation, institutional arrangements in labour markets often centre on negotiation between employers and organised employees. Employers and employees together define a framework that allows for the smooth handling of conflict and change. This has an obvious bearing on the capacity of economies to minimise joblessness, to allocate human resources efficiently and to absorb shocks. Hence indicators in the labour market must take account of the institutional and legal environment.

158.   The third feature is the macroeconomic impact of labour markets. Labour is an input into the production of all goods and services, and its price tends to be roughly co-ordinated across all uses. As a result, money wages set a short-term peg for determination of the general price level and the level of activity. At the same time, the efficiency with which human resources are allocated and utilised over the longer term shapes the growth of productivity and the scope for rising living standards.

159.   Since a multifaceted institutional environment plays such an important role, it is difficult to establish good single indicators of labour markets. And most of the labour-market indicators that are readily available are descriptive of performance rather than directly indicative of policy. Bearing these considerations in mind, this section therefore has a rather different format from the others. It attempts to analyse the links between different indicators and does so by using country examples to illustrate the problems of interpreting the indicators in this area. The section firstly reviews the most commonly-used indicators of labour-market performance and then examines certain policy indicators and the links between the two. The indicators are reviewed in the summary table.

ii) Performance indicators of labour markets

Summary indicators (Table 26)

160.   There is no simple, readily available indicator capable of measuring the functioning of labour markets. In the literature, various summary indicators have been used to capture the key characteristics of labour-market

Summary Table
REVIEW OF LABOUR MARKET INDICATORS

Indicator	Table	Chart	Objective	Disadvantage	Data source/availability
-- NAIRU, NAWRU -- Sophisticated real wage gaps	26	...	Summary measure of structural malfunctioning of labour markets	Sensitive to specification of wage equation and measurement of trend productivity growth	MD, SE, NRA
-- Simple real wage gap -- Standardised unemployment rate at cyclical peak	27	... C	" "	Tendency to understate labour market disequilibrium	NA LS, NRA
-- Real wage rigidity	...	D	Measure of shock-absorbing power	Sensitive to specification of wage equation	MD, SE, NRA
-- Long-duration unemployment	27	...	Measure of human capital decay	...	EMPLO
-- Youth unemployment	27	...	Measure of failure to acquire human capital	...	EMPLO
-- Vacancy rate compared with unemployment rate	27	...	Measure of mismatch unemployment	Underrecording of vacancies	MEI
-- Dispersion of regional unemployment rates	27	...	Measure of regional imbalance and geographical mobility	PCC	NRA
-- Part-time/total employment	27	...	Measure of preference for leisure or hidden labour market slack	PCC	EMPLO
-- Wage bargaining structure -- Trade union membership	30 30	D ...	Summary of measure of institutional framework	Definitional problems	NRA
-- Unemployment insurance provisions	30	...	Incentives to pursue active job search	Definitional problems	NRA
-- Minimum wage/average salary	...	...	Relative entry wage	...	NRA
-- Hiring and lay-off restrictions	32	...	Element of labour market rigidity	Survey-based; hard to interpret	NRA
-- Expenditure on unemployment insurance payments/GDP	31	...	Measure of passive labour market support	...	NRA
-- Expenditure on active labour market programmes/GDP	31	...	Measure of active labour market support	PCC	NRA

Abbreviations: MD = model dependent; NRA = not available on a regular basis; SE = estimates subject to appreciable margin of error;
PCC = problem with cross-country comparability. Sources: NA = OECD National Accounts; LS = OECD Labour force statistics;
EMPLO = OECD Employment Outlook; MEI = Main Economic Indicators.

performance, with the main emphasis on: the natural rate of unemployment; the rate of unemployment needed to stabilise price inflation (NAIRU) or wage inflation (NAWRU); the rate of non-cyclical or structural unemployment, proxied by the observed rate of unemployment at the peak of the cycle; and measures of real wage rigidity and the real wage gap.

161. Common to these summary indicators are two limitations; first, that they reflect the way in which particular labour markets work but do not necessarily give much information about the way in which policy influences their functioning, and second, that they inevitably reflect influences emanating from other markets. In addition, each of these summary indicators has specific weaknesses, spelt out below. Hence, they need to be used with care and in conjunction with additional indicators of performance and with information about both institutions and policy.

162. **The natural rate of unemployment**. This has been defined as the "...level of unemployment which has the property that it is consistent with equilibrium in the structure of real wage rates..." (Friedman, 1968). On this definition the natural rate is influenced by all the factors, including policies, which generate distortions in labour and product markets. While it changes over time in response to changes in market characteristics and technological progress, the rate is not directly observable. Instead, one would need to estimate a model of the economy which included all distortions and policies affecting labour and product markets, a complicated task which so far has not been implemented.

163. **The NAIRU**. Given these difficulties in measuring the natural rate, much attention has been paid to a proxy, the so-called non-accelerating inflation rate of unemployment (NAIRU), which is an empirically-determined indicator based upon wage and price equations (Coe, 1985 and Layard et al., 1984). The NAIRU is thought of as reflecting structural characteristics of the goods and labour markets, including the functioning of wage bargaining and job-matching in the labour market, technical progress, taxes, transfers and subsidies and demographics. In addition, the NAIRU depends in part on non-wage pressures on prices. If import prices are rising, unemployment needs to rise to reduce nominal wage growth for inflation to remain stable. Another concept relates to the rate of unemployment consistent with stable wage inflation (NAWRU), estimates of which are less sensitive to import price developments than NAIRU estimates (OECD, 1989a).

164. The NAIRU and NAWRU suffer from two drawbacks, one being a measurement issue and the other a problem of interpretation. Being a derived indicator, the NAIRU can only be observed for a period of time, and its precision depends critically upon all the parameters and exogenous variables in the wage and price equations. Since the estimated parameters are very sensitive to the specification of the equations, NAIRU estimates for a given country have been shown to lie in a very wide range, even for comparable periods (Adams et al., 1986). This "noise" alone makes it difficult to rely on NAIRUs as a sole summary indicator of labour-market performance. Moreover, given the role of productivity, this measure reflects structural features of economies ranging far beyond the labour market.

165. The problem of interpretation arises in the absence of a direct link from observed shifts in the NAIRU or NAWRU to its underlying causes -- whether

structural policies, exogenous structural trends, or endogenous structural processes as suggested in the "hysteresis hypothesis". Much labour-market research, which could be fairly summarised as inconclusive, has sought to test the importance of these various factors in accounting for the level of and trends in NAIRU or NAWRU estimates (Chan-Lee et al., 1987).

166.   Unemployment at the peak of the cycle. The rate of unemployment at the peak of the cycle has the advantage of being a directly observed rather than a derived indicator. It has traditionally been viewed as a reasonable proxy of structural or non-cyclical unemployment, which, as noted above, invariably reflects structural characteristics pertaining to other markets (Harrod, 1953; Hansen, 1957; Lipsey, 1965; OECD, 1977). More recently, it has been cited in the debate on "capital-shortage" unemployment -- the proposition that the employment capacity of the capital stock might have become inadequate relative to labour supply so that the rate of unemployment at the peak of the cycle might have increased (Giersch, 1981; Malinvaud, 1982; OECD, 1982). Evidence for this is provided in the upward shift of the Okun curve (defined as the relationship between the unemployment rate and the capacity utilisation), most notably in Europe (Chart C). In most countries rates of capacity utilisation seem to have been close to previous peak values in 1988 and 1989 (OECD, 1989k), indicating that recent rates of unemployment may be seen as an approximate measure of non-cyclical or structural unemployment.

167.   Like other summary indicators of labour-market performance, the rate of unemployment at the peak of the cycle is not free of problems. First, while being directly observable, it is not continuously available, since it is only known ex post. Secondly, the rate of unemployment at the peak of the cycle tends to understate the degree of malfunctioning of labour markets, because inflation typically starts rising well before capacity limits are reached. In other words, the rate of unemployment at the peak of the cycle is lower than the NAIRU, with the difference between the two rates depending upon the elasticity of output prices with respect to demand pressures. Finally, both the rate of unemployment at the peak of the cycle and the NAIRU may understate the extent of labour-market malfunctioning, because of discouraged worker effects and involuntary part-time or short-time work (Neubourg, 1988).

168.   Real wage measures. Closely linked to the NAIRU is the concept of real wage rigidity, which is usually defined as the rise in the rate of unemployment required to offset the long-run inflationary effect of a shock (Grubb et al., 1983). In analysing how labour markets have responded to inflationary supply shocks, the Secretariat has used two variants of real wage rigidity, a short-term measure (combining both the short-run elasticity of nominal wages with respect to inflation and the elasticity of nominal wages with respect to the rate of unemployment) (53) and a long-run measure, which only uses the unemployment elasticity of nominal wages (Coe, 1985). However, such measures, being derived from estimated price equations, are subject to the same measurement problems as NAIRUs.

169.   Another summary indicator of labour-market performance is the real wage gap. This measure is based on the notion that if the share of wages in value-added is constant over time, so will be the trend of employment. According to this concept, trend increases in the real product wage should correspond to trend increases in labour productivity or, to put it differently, increases in the real consumption wage should correspond to

increases in labour productivity adjusted for changes in the terms of trade. In this situation, wage inflation would be stable. The rate of unemployment prevailing in this situation is the NAWRU mentioned above.

170. Simple measures of the real wage gap, using the difference between cumulative increases in observed real wages or labour costs and those in observed labour productivity, suffer from two major problems. One is the choice of the base-year which influences the gap. More fundamentally, in the wake of inflationary supply shocks, a real wage gap may eventually disappear because the least efficient units of production are closed down and labour is shed. For this reason, from a perspective of high employment, the absence of a real wage gap does not mean that the level of real wages is necessarily consistent with a return to a high-employment growth path (Klau and Mittelstädt, 1986).

171. More sophisticated measures of the real wage gap are based upon an explicit production function, making adjustments for cyclical variations in productivity. Under certain assumptions it is then possible to calculate the "warranted" real wage, i.e. the wage compatible with full employment (Bruno and Sachs, 1985). However, calculating the warranted real wage in this way also requires normalisation by some base-year benchmark which corresponds to full employment. For this purpose, different approaches have been used, leading to different estimates of the warranted real wage. Moreover, if the elasticity of capital-labour substitution is less than unity, a rise in real wages implies a rising labour share in value-added so long as the capital per worker is rising, even if wages grow in line with the warranted real wage. In this case, a rise in real wages in excess of productivity gains does not necessarily signal a real wage problem (Artus, 1984). Consequently, sophisticated measures of the real wage gap would require the estimation of the economy's underlying production technology, which can lead to wide divergences in estimates depending on details of the specification and estimation of the equations.

172. **Comparing different summary indicators.** In Table 26, Secretariat estimates of the NAIRU and NAWRU estimates are shown together with the standardised rate of unemployment at different peaks of the cycle for the seven major countries. There is a reasonable correspondence between these various summary measures and the NAIRU and NAWRU estimates. With the exception of Italy and the United Kingdom, the rise in the NAIRU from the early 1970s to the mid-1980s is similar to that observed for the rate of unemployment at the peak of the cycle. This is a plausible result, since an upward shift of the Okun curve implies a rise in the NAIRU. As can be seen from Table 26, increases in the NAIRU and the rate of unemployment at the peak of the cycle have been small for the United States, Japan and Canada and large for the four major European countries.

173. What do rises in the NAIRU and the rate of unemployment at the peak of the cycle mean? In a world free of unexpected shocks, such increases may point to a fall in labour-market efficiency (increased malfunctioning), which may arise from a variety of sources, including increased trade-union militancy, increases in minimum wages or an easing of unemployment insurance provisions. When economies are hit by shocks, however, increases in the NAIRU and the rate of unemployment at the peak of the cycle may also reflect macroeconomic disequilibria and become a measure of the shock-absorbing power

of labour markets (labour-market flexibility). But it is clearly difficult to distinguish these two cases without having supporting information on other aspects of the labour market.

Detailed indicators (Tables 27 to 29)

174. In order to complement the information provided by aggregate indicators, the Secretariat regularly makes use of a wide range of detailed indicators of labour-market structure. These include the share of long-duration unemployment in total unemployment as an indicator of human capital decay; the employment/population ratio as the broadest measure of underutilisation of labour; the youth unemployment rate as an indicator of a form of labour-market segmentation potentially costly to human capital development; the dispersion of regional unemployment rates as an indicator of regional imbalance and perhaps of geographical mobility; and the vacancy rate as an indicator of labour-market mismatch. These indicators are valuable in providing evidence about the success and failure of labour-market institutions and policies. Indeed, in many respects they fulfil the requirements for clarity, comprehensibility and ease of calculation, but still stop well short of being directly relatable to policies.

175. Information on detailed indicators is presented in Table 27 with the countries being divided into three groups of high, medium and low unemployment according to the standardised rates of unemployment in 1988. Given the relatively close correspondence between this measure of unemployment at cyclical peaks and NAIRU measures, the same sort of grouping would be arrived at using NAIRU estimates. The Table shows that countries may have a similar rate of overall unemployment, while the detailed indicators strongly diverge. Comparing Japan and Norway, countries with low unemployment, and France and Belgium, countries with high unemployment, illustrates this point. When examining such indicators, it is useful to identify and look for explanations for outliers; this will often require more detailed study. The country-specific problems indicated by these indicators, which also need to be taken into account in structural surveillance, are summarised in Table 28.

176. The list of detailed indicators could be expanded to include hours worked and microeconomic performance criteria such as age- and sex-specific unemployment rates, movements in sectoral employment shares, job tenure and gross employment flows (hirings, quits and lay-offs). For purposes of detailed structural surveillance, it is clear that attention needs to be given to a wide variety of indicators, where available, taking into account that it is not always clear how some of the data should be interpreted (OECD, 19891).

177. Another commonly suggested indicator which is also subject to severe problems of interpretation is wage differentials by age, sector, region or occupation. Both their level (as measured by the coefficient of variation) and changes therein are hard to evaluate. For example, low or falling wage differentials may reflect either high labour mobility or the effects of egalitarian wage-setting policies which reduce incentives to move. Hence, interpretation of wage differentials is subject to significant ambiguities and they need to be placed into the institutional and political context of the individual country (see below).

178. Tracing changes in both the summary and supplementary indicators over time yields information about changes in the malfunctioning of labour markets and the nature of such changes. For purposes of illustration, Table 29 presents changes for each of the detailed indicators of labour-market performance between 1979 and 1988. Using these indicators, it is possible to identify three broad labour-market groups; one where structural labour-market conditions seem to have improved; another where such conditions seem to have deteriorated by a small amount, and a third where structural labour-market conditions seem to have worsened significantly. The key point to emphasise here, however, is that such analysis depends heavily on judgements about the indicators presented and ideally requires consideration of the more fundamental institutional characteristics of labour markets reviewed below.

      iii) **Institutional and policy indicators** (Tables 30 to 33)

179. The above indicators of labour-market performance need to be seen in the light of the institutional and policy framework within which labour markets typically operate. The main constituents of this framework are the wage bargaining system; in particular, the role and power of trade unions and employers' organisations; unemployment insurance and other social security provisions; wage differentials; lay-off and hiring restrictions, the minimum wage, non-wage labour costs, subsidies, income and payroll taxes, and public labour-market policies. Each of these features are amenable to policy action, though to differing degrees.

180. As noted above, structural and institutional characteristics are among the ingredients of the natural rate of unemployment, and, as such, they lie behind empirically-determined performance indicators such as the NAIRU and real wage rigidity (Friedman, 1968; Coe, 1989). Moreover, in a period following unexpected shocks, institutional features also affect **changes** in both the NAIRU and the rate of unemployment at the peak of the cycle. In this sense, the institutional framework, as it exists at the time of shocks, has implications for the path of unemployment over the medium run.

181. The degree of centralisation of the wage bargaining structure and trade union power (e.g. union density, strike activity or the mark-up over non-union wages) are probably the broadest indicators of the institutional environment in which labour markets operate. In countries with highly centralised wage bargaining systems or high trade union membership, the political representation of wage and salary earners is likely to be strong, and **vice versa**. This may affect the level of minimum wages, unemployment insurance benefits and outlays on active labour market programmes, which are subject to government legislation and therefore represent rather direct indicators of labour-market policy broadly defined. Given these presumed linkages, it is of interest to examine the relationship between each institutional indicator and the degree of decentralisation of wage bargaining structures, as measured by Calmfors and Drifill (1988).

182. According to this analysis, countries with **highly centralised** wage bargaining structures (Denmark, Finland, Sweden and, to a lesser extent, Austria) are characterised by small wage differentials, generous unemployment insurance provisions and high outlays on active labour market programmes (Tables 30 and 31). In addition, all these countries have above-average subsidy/GDP ratios. The opposite configuration emerges for countries with

highly decentralised systems (the United States, Japan, Canada and Switzerland). These countries combine low trade-union membership with restrictive unemployment insurance provisions, low expenditure on active manpower policies, large inter-industry wage differentials and low subsidies. The severity of hiring and lay-off restrictions (Table 32) appears unrelated to the degree of decentralisation of wage bargaining structures.

183. Is it possible to establish a link between indicators of labour-market performance and institutional and policy indicators? In Charts D and E, the Calmfors-Drifill measure of wage bargaining structures has been plotted against two variables -- a measure of short-run real wage rigidity and changes in the rate of unemployment at the peak of the cycle. In both cases, this reveals a bell-shaped association. Countries appear to have similar degrees of short-run real wage rigidity in spite of sharply different degrees of decentralisation of wage bargaining (Chart D). This is borne out by a comparison between Austria, Finland and Sweden on the one hand and the United States, Japan and Canada on the other. This also implies that a low measure of real wage rigidity is compatible with polar values for trade-union power, unemployment insurance provisions, wage differentials and outlays on active labour-market programmes.

184. Similar inferences can be drawn from Chart E which shows that countries with small increases in non-cyclical unemployment are generally those with highly-centralised or highly-decentralised wage bargaining systems. The fact that labour-market outcomes can be favourable, notwithstanding a set of sharply different institutional aspects, shows that interpretation of labour market indicators is complex. It may not be possible to equate a high or low level of an institutional or policy indicator with a good or bad performance. In contrast, judged by increases in both the NAIRU and non-cyclical unemployment, labour markets seem to function less well in countries with an intermediate position in terms of decentralisation or trade union membership (Germany, France, the United Kingdom, Italy, Belgium, the Netherlands, and Australia). These countries generally have moderately generous unemployment insurance provisions; small inter-industry wage differentials; high relative minimum wages (Belgium and the Netherlands); an above-average degree of lay-off and hiring restrictions (Germany, Italy and Belgium); and high government spending on active labour-market policies and subsidies. These features are summarised in Table 33.

185. Two important indicators of direct government involvement in labour markets are **government expenditure on active labour market support** (54) and **outlays on income maintenance** (including unemployment compensation) (Table 31). Both kinds of government spending relative to GDP are positively related with the rate of unemployment. The ratio of outlays on active support measures in 1988 to outlays on income maintenance yields a relative, though narrow, measure of Government efforts to lower non-cyclical unemployment. With the exception of Italy, Greece, Norway, Portugal and Sweden, all countries spend less on active labour market programmes than on income support. Unfortunately, internationally comparable data on active support measures exist only for four years (1985-88) (OECD, 19891). This makes it extremely difficult to establish a causal link between outlays on active labour market programmes as a policy indicator and the performance indicators discussed above.

iv) Measuring the effects of supply-side policies

186. Given these constraints, some empirical studies have proposed indirect ways and means of measuring relative policy success. (Chan-Lee et al., 1987). One way consists in testing for the stability of wage equations, identifying breaks for those periods when new supply-side measures have been put into effect. The proposition is that nominal wage changes may have become more elastic with respect to the rate of unemployment, with the rise in the unemployment coefficient and the related overprediction of wages mirroring the effects of supply-side policies. In some cases, there is indeed some evidence of nominal wage increases having become more responsive to the rate of unemployment, for example in the United States (Blanchard, 1987). But in general it has not yet proved possible to get definitive results, especially as hysteresis effects complicate the analysis.

187. While clear judgements on the relative success of new supply-side policies in labour markets remain elusive, it is possible to take for each country a bird's-eye view of both performance indicators and institutional and policy characteristics. Such a broadly-based approach helps pinpoint areas where new or stronger policy action seems necessary. The examples of Belgium, a high unemployment country, and two low unemployment countries, Sweden and Japan, may illustrate this point.

188. Within the group of high-unemployment countries, Belgium stands out because of its exceptionally high long-duration unemployment, a high vacancy rate and a below-average dispersion of regional unemployment rates (Table 27). Moreover, both long-duration unemployment and the vacancy rate have risen in tandem during the 1980s, a sign of increased malfunctioning of the labour market (Table 29). On the institutional and policy side, in comparison with other high-unemployment countries, trade unionisation is above average (Table 30). Large sums are spent on both active labour-market programmes and unemployment insurance compensation (Table 31), with the ratio between the two variables (active support relative to passive support) being slightly below the average for high-unemployment countries. In addition, the provisions of its unemployment insurance scheme are generous, as characterised by an indefinite payments period (OECD, 1988e), while the relative minimum wage is high (Chan-Lee et al., 1987). Finally, judging by surveys, lay-off and hiring restrictions seem to be important (Table 32). Given such a configuration of performance and policy indicators, attention is drawn towards the generosity of the unemployment insurance system (contributing to a high reservation wage), the nature of active labour-market programmes (i.e. their apparent inability to reverse the rising trend in vacancies) and restrictions impeding the hiring and firing of persons. In such a setting, lowering the relative minimum wage without tightening unemployment insurance provisions would seem to solve little.

189. In the case of Sweden, a country with low unemployment, looking simultaneously at performance and institutional indicators raises questions about the relative effectiveness of active labour-market programmes and the role of wage differentials. Active labour-market programmes absorb record sums equal to 2 per cent of GDP, ten times as much as in Japan, another country with low unemployment. At the same time, notwithstanding the substantial public investment in human capital, both the rate of vacancies and the dispersion of regional unemployment rates are significantly higher in

Sweden than in Japan (Table 27). Industrial wage differentials in Sweden are, however, extremely small as compared with Japan (Table 30), and this emerges as an area for exploration as a factor contributing to mismatch.

v) Assessment

190. Deriving performance and policy indicators for the labour market is beset by a number of problems. Summary indicators of labour market performance inevitably reflect influences emanating from other markets. A potential disadvantage of those measures that are derived from estimated equations or simple models, such as the NAIRUs and real wage gaps, is that they are very indirect indicators of performance and, because of their derivation, rather "fragile" (e.g. being sensitive to specification changes). Each of the commonly used summary indicators (NAIRU, real wage gap and the rate of unemployment at the peak of the cycle) has individual weaknesses, which make it inadvisable to place exclusive reliance on any one of them. Furthermore, a deterioration in actual unemployment, or even the estimated NAIRU, does not necessarily imply that policies have deteriorated, because the impact of policy may have been masked by adverse external shocks.

191. It is indispensable to pay close attention to detailed indicators of labour-market performance. Countries may differ in terms of long-duration unemployment, the dispersion of regional unemployment rates and vacancy rates without such differences being reflected in the summary indicators. Hence, to give a realistic assessment, each country's summary indicators need to be placed in the context both of other performance indicators and the policy and institutional environment.

192. In the policy and institutional domain, indicators also abound, including indicators of the wage bargaining system, minimum wages, unemployment insurance provisions, hiring and lay-off restrictions, expenditure on active labour-market programmes, etc. Emphasis has been placed here upon the broadest indicator of the way in which labour markets operate, namely the structure of wage bargaining systems or the degree of decentralisation of wage bargaining. Other institutional and policy aspects such as minimum wages, unemployment insurance provisions and wage differentials may be related to such indicators. The problem of taking any of these factors in isolation is that they may be misleading if they affect labour-market outcomes very differently because of other characteristics of the labour or product markets in the particular countries being considered. This is illustrated by the fact that some countries have experienced similar increases in the rate of unemployment at the peak of the cycle, and the NAIRU, in spite of a strikingly different set of institutional features.

193. In conclusion, it would be a mistake to believe that single indicators can provide sufficient information for the purposes of structural surveillance of labour markets. One cannot equate a high or low level of an individual policy indicator with good or bad performance. Though indicators may provide a valuable guide to structural trends, it will still be necessary to continue to depend on the more detailed structural reporting carried out in country surveys and by specialised Committees in the Organisation.

Table 26

SUMMARY INDICATORS OF LABOUR MARKET PERFORMANCE

	NAIRU estimates	NAWRU estimates	Standardised unemployment rate at or near the peak of the cycle
United States	5.4 (1971-76) 5.7 (1977-82) 6.0 (1983-87)	6.6 (1973-79) 6.7 (1980-83) 6.5 (1984-87) 6.0 (1987)	4.8 (1973) 5.8 (1979) 5.4 (1988)
Japan	1.3 (1971-76) 2.5 (1977-82) 2.5 (1983-87)	1.8 (1973-79) 2.0 (1980-83) 2.0 (1984-87) 2.0 (1987)	1.3 (1973) 2.1 (1979) 2.5 (1988)
Germany	1.1 (1971-76) 3.1 (1977-82) 6.0 (1983-87)	3.0 (1973-79) 3.5 (1980-83) 3.7 (1983-87) 4.0 (1987)	0.8 (1973) 3.2 (1979) 6.2 (1988)
France	0.0 (1971-76) 4.3 (1977-82) 6.0 (1983-87)	0.9 (1973-79) 3.9 (1980-83) 4.7 (1984-87) 5.0 (1987)	2.7 (1973) 5.9 (1979) 10.1 (1988)
Italy	7.6 (1971-76) 7.0 (1977-82) 7.3 (1983-87)	5.3 (1973-79) 6.7 (1980-83) 7.7 (1984-87) 7.8 (1987)	6.2 (1973) 7.6 (1979) 11.8 (1988)
United Kingdom	7.5 (1971-75) 7.5 (1976-80) 6.0 (1981-83)	... ...	3.0 (1973) 5.0 (1979) 8.3 (1988)
Canada	6.5 (1971-76) 8.3 (1977-82) 8.9 (1983-87)	6.6 (1973-79) 8.5 (1980-83) 8.1 (1984-87) 7.5 (1987)	5.5 (1973) 7.4 (1979) 7.7 (1988)

Sources: OECD (1986), Economic Outlook 40, December, p. 30; OECD (1989), Economies in Transition, p. 47 and p. 50; OECD (1989), Economic Outlook 45, June, p. 188.

Table 27

ADDITIONAL INDICATORS OF LABOUR MARKET PERFORMANCES IN 1987 AND 1988

	Standardised rates of unemployment (1988)	Long-duration unemployment (b)	Youth unemployment rate (c)	Dispersion of regional unemployment (d)	Vacancy rate (e)	Employment/ population ratio (f)	Part-time employment (g)	Labour force growth (1973-88) (h)
Low-unemployment countries								
Switzerland	0.7 (a)	..	4.0	0.95	0.43	71.1	25.1	0.1
Sweden	1.6	8.2	5.0	0.74	1.41	79.3	16.6	0.7
Japan	2.5	20.2	6.0	0.55	0.91	70.4	25.7	1.1
Norway	3.2	5.0	..	0.44	0.47	78.8	..	1.6
Austria	3.6 (a)	10.8	..	..	0.89	64.3	..	0.4
Finland	4.5	19.0	9.0	2.24	0.65	72.4	8.1	0.8
Intermediate group								
United States	5.4	8.1	10.3	2.12	0.19	69.5	17.3	2.1
Portugal	5.6	56.6	..	..	0.17	65.2	6.0	1.8
New Zealand	6.0 (a)	..	7.2	..	..	71.5	..	1.6
Germany	6.2	48.1	..	3.32	0.66	60.7	12.9	0.6
Australia	7.2	28.7	13.0	1.22	0.75	66.4	20.0	2.0
Greece	7.7 (a)	45.8	..	1.19	..	54.3	5.8	1.3
Canada	7.7	3.4	11.5	3.56	..	68.1	15.4	2.5
United Kingdom	8.3	45.2	14.5	3.03	0.87	58.7	21.6	0.8
Denmark	8.6 (a)	29.6	..	0.92	0.04	76.2	23.7	1.0
Netherlands	9.5	55.6	..	0.65	0.48	46.9	21.0	0.5
High-unemployment countries								
France	10.1	45.5	24.0	1.62	0.26	58.7	11.8	0.7
Belgium	10.2	74.5	..	2.22	0.49	56.7	9.4	0.6
Italy	11.8	55.0	37.7	7.35	..	58.0	5.0	1.1
Ireland	16.7 (a)	65.8	..	0.76	..	50.8	6.2	1.1
Spain	19.1	61.9	37.0	5.14	0.34	44.9	..	0.8

a) National definition.
b) Number of unemployed (12-months and over) in per cent of total unemployment (1987).
c) Number of unemployed (15-24 years) in per cent of youth labour force (1988).
d) 1987 measured by standard deviation. United States 50 states; Japan 10 regions; Germany 11 Länder; France 22 regions; United Kingdom 11 regions; Canada 9 provinces; Australia 6 states; Austria 3 regions; Denmark 3 regions; Finland 10 regions; Norway 5 regions; Ireland 4 regions; Spain 11 regions; Sweden 24 counties.
e) In per cent of labour force (1988); vacancies registered with National Employment Agencies. Such data do not exist for the United States and Canada.
f) 1987.
g) In per cent of total employment (1986 or 1987).
h) Average percentage change at annual rate.

Sources: OECD Economic Outlook 45, 1989; OECD Employment Outlook, September 1989; Commission of the European Communities, Annual Economic Report 1988-89.

Table 28

SPECIFIC PROBLEMS AS INDICATED BY ADDITIONAL PERFORMANCE INDICATORS (a)

	Additional indicators
I. Low unemployment countries	
Sweden	High vacancy rate
Switzerland	None
Norway	Youth unemployment rate
Japan	Long-duration unemployment
Austria	High vacancy rate
Finland	Regional dispersion and long-duration unemployment
II. Intermediate group	
United States	Youth unemployment and regional dispersion
New Zealand	None
Portugal	Long-duration unemployment and regional dispersion
Australia	High vacancy rate
Canada	Regional dispersion
Greece	Long-duration unemployment
Denmark	Long-duration unemployment
Germany	Long-duration unemployment, regional dispersion, high vacancy rate
Netherlands	Long-duration unemployment
United Kingdom	Long-duration unemployment, regional dispersion, high vacancy rate
III. High unemployment countries	
France	Regional dispersion
Belgium	Regional dispersion, vacancy rate, long-duration unemployment
Italy	Youth unemployment, long-duration unemployment and extremely high regional dispersion
Ireland	Long-duration unemployment
Turkey	Regional dispersion
Spain	Long-duration unemployment, extremely high youth unemployment and extremely high regional dispersion

a)   The ordering of countries in this table closely follows Table 27 except in cases where, for similar rates of unemployment, the additional indicators shown in Table 27 strongly diverge.

Table 29

CHANGES IN LABOUR MARKET PERFORMANCE

	Change in the standardised unemployment rate between 1979 and 1988	Change in long-duration unemployment (1987 minus 1979)	Change in vacancy rate (1988 minus 1979)	Change in youth unemployment rate (1988 minus 1979)	Change in dispersion of regional unemployment (f) (1987 minus 1980-82)	Change in employment/population ratio (1987 minus 1979)	Change in overall participation rate (1987 minus 1979)	Change in lab supply growth (g) (1979-88 minus 1973-79)
I. Improvement or zero change (labour market resilience)								
Portugal	-2.6	..	..	..	..	-0.6	-3.0	-1.94
Sweden	-0.5	1.4	0.25	-1.0	0.01	0.4	2.5	-0.28
United States	-0.4	3.9	..	-1.0	0.20	2.9	3.1	-1.07
Finland	-0.1 (a)	-4.5 (b)	0.15 (a)	-1.0	-0.24	0.4 (b)	1.5	0.08
II. Moderate deterioration								
Japan	0.4	3.7	0.22	1.6	0.12	0.1	0.7	0.01
Switzerland	0.4	..	0.14	..	..	-2.4	-1.3	1.15
Canada	0.3	7.9	..	-1.5	0.40	2.9	4.3	-1.50
Norway	1.2	1.2	-0.05	-0.6	..	4.5	5.5	-0.53
Australia	1.5 (c)	7.7 (d)	0.24 (c)	2.2	0.16	-0.6 (d)	3.0	0.60
New Zealand	1.7	..	0.12	..	..	-2.1	6.9	-0.99
Austria	1.9	2.2	-0.05	..	..	-3.3	-2.7	0.07
Belgium	2.0	16.5	0.36	..	..	-2.7	-0.7	-0.73
Turkey	2.3	..	..	..	..	-8.8	-8.8	-0.28
Denmark	2.4	..	-0.04	..	..	1.8	3.0	-0.28
III. Pronounced deterioration (labour market rigidity)								
Germany	3.0	28.2	-0.47	3.5	1.98	-3.9	-0.7	1.08
United Kingdom	3.3	20.4	-0.04	3.2	0.72	-2.6	-0.3	0.14
Netherlands	4.1	28.5 (e)	-0.87	..	..	-4.8	1.3	0.07
Italy	4.2	19.2	..	12.1	3.09	-0.9	0.8	0.12
France	4.2	15.2	-0.12	10.7	0.34	-5.5	-2.0	-1.52
Greece	5.8	..	..	..	..	-0.1	3.1	1.15
Ireland	9.6	34.0	..	..	..	-7.9	0.8	-0.57
Spain	10.6	34.0	..	15.8	..	-7.2	0.2	0.61

a) 1988 minus 1980.
b) 1987 minus 1980.
c) 1988 minus 1981.
d) 1987 minus 1981.
e) Based on old data.
f) For definition, see Table 27.
g) Average percentage change at annual rate

Table 30

SELECTED STRUCTURAL AND INSTITUTIONAL FEATURES

	Inter-industry wage differential (a)	Trade union membership (b)	Unemployment insurance provisions (c)	Degree of decentralisation of wage bargaining (d)
United States	26.2	15	2.50	15
Japan	26.1	22	2.80	13
Germany	14.4	35	8.19	6
France	13.8	..	7.26	10
Italy	11.2	39	3.96	12
United Kingdom	16.8	42	..	11
Canada	24.8	..	4.20	16
Austria	..	..	3.00	1
Belgium	..	63	7.20	8
Denmark	..	73	13.50	4
Finland	..	68	9.00	5
Netherlands	..	32	14.70	7
Norway	..	56	11.78	..
Sweden	10.5	79	11.20	3
Switzerland	..	..	2.80	14
Australia	..	43	..	9

a) Average coefficient of variation for three years -- 1980, 1981 and 1982; 16 sub-sectors except for Japan (14) and France (15).

b) As a percentage of total labour force (early 1980s).

c) Unemployment benefits as a percentage of the gross reference wage multiplied by the maximum duration period (1988).

d) Inverse of degree of corporatism.

Source: Swedish Employers' Confederation; EEC National Statistics Yearbook; OECD Employment Outlook, September 1988, p. 120; Clamfors, Lars and Drifill (1988), "Centralised wage bargaining and macroeconomic performance", Economic Policy, April; OECD Economic Outlook 43, June 1988.

Table 31

PUBLIC EXPENDITURE ON LABOUR MARKET PROGRAMMES
IN PER CENT OF GDP

(average of 4 years) (a)

	"Active" measures (b)	Unemployment compensation	Active support relative to passive support (c)
United States	0.26 (d)	0.51 (d)	0.51
Japan	0.19 (e)	0.40 (e)	0.59
Germany	0.95	1.35	0.70
France	0.74 (f)	1.26 (f)	0.59
Italy	0.67	0.57	1.18
United Kingdom	0.80	1.86	0.43
Canada	0.58	1.74	0.33
Austria	0.31	0.88	0.35
Belgium	1.27	2.38	0.53
Denmark	1.13 (d)	2.80 (d)	0.40
Finland	0.88	0.90	0.98
Greece	0.43	0.43	1.00
Ireland	1.48	3.63	0.41
Netherlands	1.12	2.88	0.39
Norway	0.51	0.44	1.16
Portugal	0.50 (d)	0.37 (d)	1.35
Spain	0.65	2.57	0.25
Sweden	1.96	0.69	2.84
Switzerland	0.17	0.23	0.74
Australia	0.36	1.20	0.30
New Zealand	0.73	0.86 (f)	0.85

a) 1985-1988.
b) Including labour market training, special youth measures, direct job creation, employment subsidies and measures for the disabled.
c) Column 1 relative to column 3.
d) Excluding 1985.
e) Excluding 1985 and 1986.
f) Excluding 1988.

Source: OECD (1989*), Employment Outlook, July, pages 206-207.

Table 32

SELECTED INSTITUTIONAL INDICATORS OF EMPLOYMENT RIGIDITY

	Lay-off restrictions [Percentage of firms judging that there would be a positive employment impact from shorter periods of notice for redundancies and simpler legal procedures (1985)]	Hiring restrictions [Percentage of firms expecting a positive employment impact from measures facilitating temporary contracts (1985)]	Average
Italy	88	63	76
Greece	76	50	63
Belgium	74	63	69
Germany	63	74	69
France	48	53	51
Netherlands	47	32	40
Ireland	35	47	41
United Kingdom	28	27	28

Source: Commission of the European Communities, "Results of a Survey of Labour Market Flexibility", European Economy, No. 27, July 1986, Brussels and Michael Emerson, "Regulation or Deregulation of the Labour Market", European Economic Review, Vol. 32, April 1988.

Table 33

PERFORMANCE AND POLICY INDICATORS: SYNOPTIC TABLE

Performance and policy indicators	Change in labour market performance (early 1970s to 1988)	
	Countries with an improvement or small deterioration in labour market performance	Countries with a strong deterioration in labour market performance
Summary performance indicators		
-- NAIRU	Small rise or fall	Large rise
-- unemployment rate at the peak of the cycle	Small rise or fall	Large rise
-- real wage rigidity	Low	High
Policy and institutional indicators		
-- wage bargaining system	highly centralised or highly decentralised	intermediate degree of decentralisation
-- trade union membership	high or low	average
-- unemployment insurance provisions	strongly generous or strongly restrictive	weakly restrictive
-- wage differentials (incl. minimum wage)	high or small	average
-- outlays on active labour market programmes	very high or very low	intermediate or low

Chart C

UNEMPLOYMENT RATES AND CAPACITY USE (a)
(Okun Curves)

United States

Japan

OECD-Europe
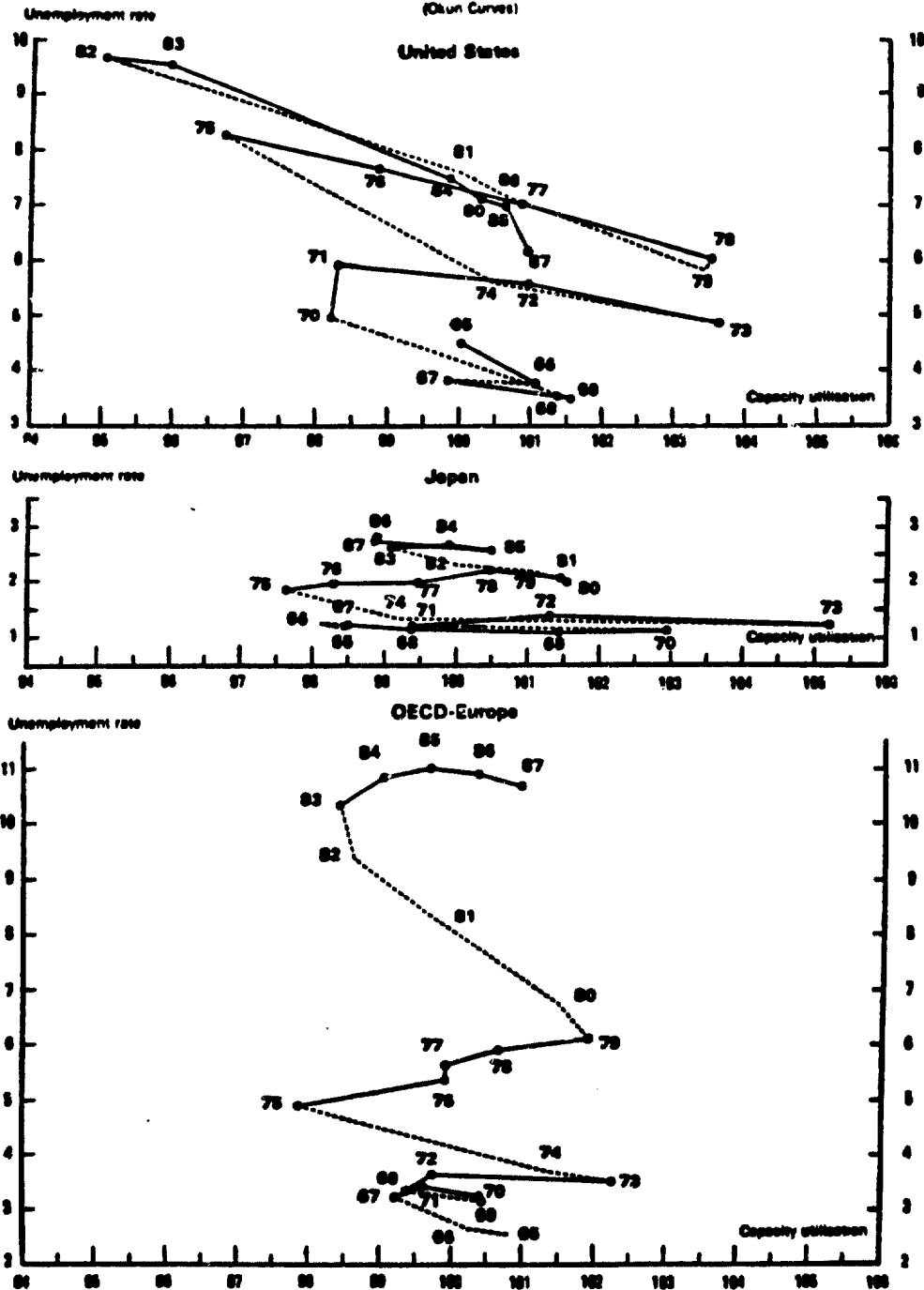
a) Ratio of actual real GDP to phased trend.

Sources: Business surveys and Cyclical indicators, Labour force statistics.

Chart D

REAL WAGE RIGIDITY

A. Real wage rigidity (1) and the degree of corporatism (2)
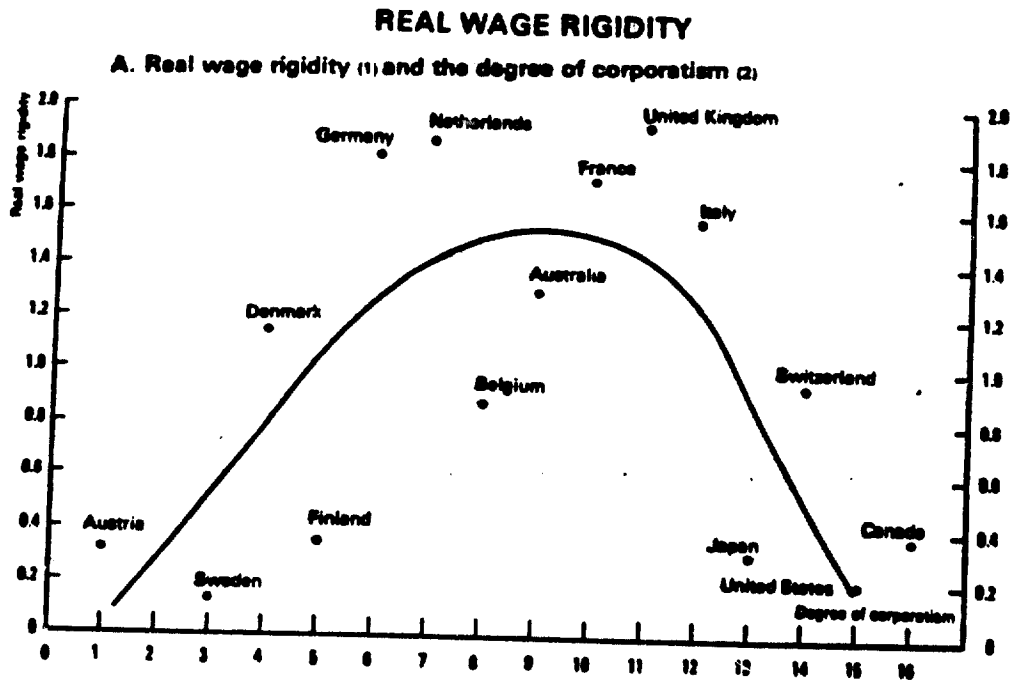
a)   Real wage rigidity is measured by the short-run rigidity indicator.

Source: OECD (1989a).

Chart E

Rise in Non-Cyclical Unemployment and Wage Bargaining Structure

Change in
Unemployment
Between 1973 and 1988
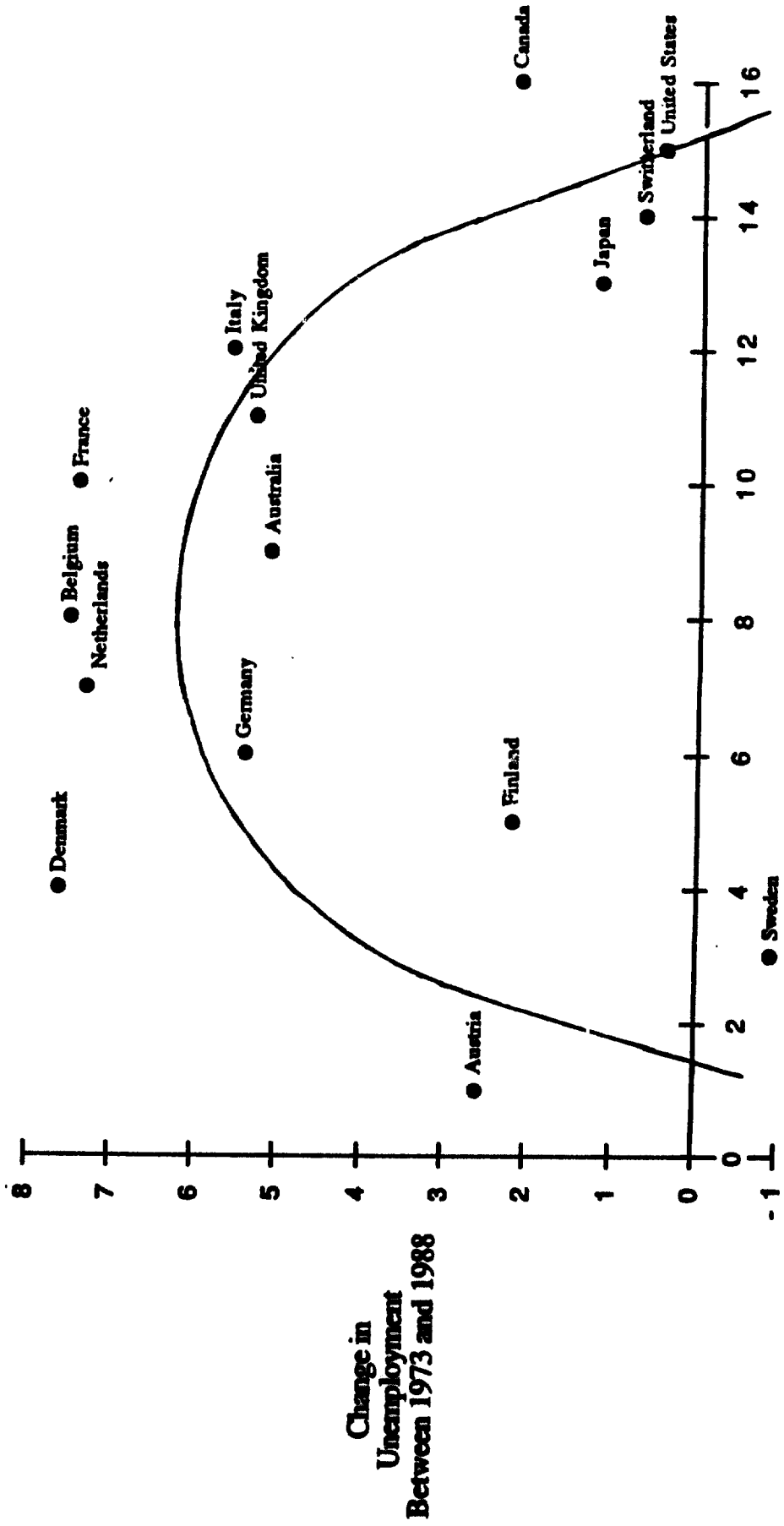
Degree of Decentralisation of Wage Bargaining

Source: Calmfors and Drifill (1988) and OECD (1989a).

VIII. **FINANCIAL MARKETS**

by Adrian Blundell-Wignall and Kazuhiko Ishida

194. Financial markets have been subject to increasing competitive pressure and changes in the past two decades as a result of deregulatory policies of governments, pressure from the financial sector itself and technological progress. This process quickened during the 1980s, as key regulations were dismantled, leading to cumulative pressures within financial systems of individual countries and between countries. This process has become more complex as distinctions between banks, other deposit-taking institutions, securities firms and stock exchanges have become blurred, and as innovations in financial services have become more widespread. In these circumstances it is important to develop indicators that help to monitor not only policies but the broader process of structural change in the financial system and the net benefit to society.

195. This subject is extremely broad, covering financial arrangements in all areas of economic activity, so that the indicators reviewed in this section do not pretend to have a comprehensive coverage. The aim is to provide an overall framework within which different types of indicators can be considered and to point out examples of the types of problems likely to be encountered when interpreting readily-available measures within each category. The emphasis, therefore, is on the need for future work to improve existing indicators and to extend their coverage as new primary data sources come to hand.

196. There are two broad areas for which indicators would be useful in this assessment of relative benefits and costs of structural change in the financial system:

- - indicators of changes in regulatory policies and in the basic competitive structure of markets; and

- - indicators of the efficiency performance of financial markets as deregulation progresses.

i) **Indicators of policy change**

197. It is useful to monitor the evolution of deregulatory and competition policies in order to identify areas that inhibit the working of market forces in financial markets between countries or in individual sectors within a given country. A common approach here is to list measures taken and restrictions remaining. A recent example of this approach is provided in OECD (1989m) which deals with the following measures: interest-rate deregulation; the creation and development of money markets; the introduction of auction techniques for selling government debt instruments; deregulation and diversification of financial service activities; measures fostering the creation and diversification of marketable financial instruments; deregulation of branch banking; deregulation of foreign bank entry; abolition of credit ceilings and deregulation of mandatory investment requirements. The study also lists remaining regulations, restrictions on bank ownership and the treatment of the banking system under competition laws.

Summary Table
REVIEW OF FINANCIAL INDICATORS

Indicator	Table	Objective	Disadvantage	Data source/availability
Introduction of money market instruments	34	Monitor changes in competitive market structure.	Ignores cartel arrangements and non-regulatory barriers to entry.	OECD 1989(1)
Expansion of banking networks	35	"	Economies of scale and the structure of demand may imply that greater fragmentation, entry and participation may be inefficient, compared to more concentrated markets that are contestible.	OECD 1989(1)
Expansion of international banking networks	36	"	"	OECD 1889(1)
Share of 5 largest banks in total assets	37	"	"	
Non-financial corporate borrowing and equity issues	38	Monitor allocative efficiency by examining extent to which financial institutions fund productive investment in companies.	Superficial examination ignores issues of debt/equity shifts related to tax incentives, leveraged buyouts etc. Where takeovers are invloved measuring productivity changes of enterprises is difficult.	DAFFE
Bank interest rate margins	39	Monitor operational efficiency -- are costs reduced as deregulation proceeds?	Cyclical influences, different mix between fixed and floating debt between countries, deposit regulations and different competitive structure imply lack of comparability over time and between countries.	DAFFE and Salomon Bros.
Bank productivity	40	"	Difficulties of measuring appropriate output or scale variable, cyclical influences. Not measured in relation to benchmark of optimal cost and output measures.	DAFFE and Salomon Bros.
Liabilities structure of banks	41	Monitor dynamic efficiency -- responsiveness to customer demands, etc.	Too general, as price, technology and regulatory influences affect outcomes. More analysis required.	IMF
Futures market developments	42	"	Partial data coverage across countries.	OECD 1989(1)

DAFFE: regular statistical publication
IMF: International Monetary Statistics

198. This documentation is relatively straightforward, and summary tables such as ones showing the introduction of new money-market instruments in different countries, as shown in Table 34, or the timing of changes in interest-rate controls, are useful in making cross-country comparisons. However, while it is important to monitor steps already taken in relation to remaining regulations, this does not give a clear picture of the extent to which playing fields are being levelled in practice. Financial system structures and regulations differ between countries, as do consumer tastes, informal relationships between market participants, and general financial business habits and practices. For example, some countries may have had administrative interest-rate ceilings for bank deposits while others have never had them. Banks within the latter group may, instead, have operated cartel-like agreements which gave rise to little price competition for bank deposits in practice. It is difficult to compare these situations between countries. Similarly, the removal of an interest-rate ceiling may have quite different effects depending on the intensity of competitive pressures, including whether competing instruments had evolved. Competition for deposits may not improve if there is no serious threat of entry into the banking system, or if other regulations, such as ones concerning branching, become a new binding constraint. In these circumstances indicators of policy change need to be considered in parallel with indicators of changes in the competitive structure of financial markets.

199. **Concentration and entry**. Tables 35 to 37 show some frequently used measures of participation and concentration. Table 35 shows the expansion of banking networks and their density in terms of the number of inhabitants. Table 36 shows the number of foreign banks that operate within the host country. Finally, Table 37 shows the share of the five largest banks in the total and domestic assets of all banks. Similar measures can be constructed for securities firms, stockbroking and other sectors within the financial system.

200. These broad indicators of entry and concentration are of limited usefulness for assessing the appropriateness of changes in competitive structure. To pursue the banking example further, one could assume that greater entry, reduced rates of concentration and higher density of bank offices per head of population would reflect greater competitive pressures and hence improved performance. However, while entry (or indeed the threat of entry) can be a useful competitive discipline, cost structures can be such that real dangers of "overbanking" may arise. There are important economies of scale in the banking system related to overheads, changing technology and the structure of customer demands. Thus, for example, electronic payments and clearing systems may greatly reduce the need for expensive branch networks. Costs can be reduced through rationalisation and concentration where fragmented banking systems are highly inefficient. The structure of demand may also be such that it is difficult for new entrants to penetrate the retail banking market.

201. Thus a situation of relatively high concentration in retail banking in the context of contestable national markets and the threat of entry may be superior to more highly-fragmented systems. Similar comments apply to other financial market participants such as stockbroking firms, which have also been subject to deregulatory measures in a number of countries. While it is important to monitor what is happening to policies and markets, there is an

even greater need to develop indicators of what these changes really mean for the efficiency of the financial system.

ii) Indicators of financial market efficiency

202. The aim of financial deregulation and competition policy has been to improve economic performance through increased competitive efficiency within financial markets. It is through these channels that indirect benefits are derived for non-financial sectors of the economy. Three broad areas of efficiency may be identified:

-- allocative efficiency. whereby the removal of regulations and price distortions permits savings to be directed into highest yielding (risk-adjusted) forms of investment;

-- operational efficiency, whereby increased competition reduces costs of financial intermediation and other services; and

-- dynamic efficiency. whereby deregulation and increased competition help to generate an improved range of financial products and services through innovations. permitting capital markets to adapt to changing customer needs in a flexible way.

The extent to which efficiency gains are being achieved differs from country to country. depending on the nature of deregulatory policy changes and the pre-existing structure of competition in financial markets.

a) Allocative efficiency

203. Where economic decisions are constrained by the availability of financial services and liquidity the level and allocation of savings and investment may be adversely affected. Welfare and production possibilities are constrained as flows of savings to investments with potentially the highest (risk-adjusted) returns are inhibited. Deregulation and increased competition in financial markets should improve allocative efficiency and hence economic performance more generally.

204. The extent to which financial resources are being put to their most productive uses is a necessarily complex area. Indicators in two broad areas are of ... icular interest:

- measures of the extent to which deregulation in international markets eases the constraint that national investment be financed from national savings -- so that capital can flow from countries with relatively high savings in relation to investment opportunities to countries in the reverse situation; and

-- measures of the extent to which financial resources fund productive investment within the domestic economy. and permit it to be allocated through the price mechanism to areas of high productivity.

205. The first area suggests some relatively direct indicators. The removal of capital controls. floating exchange rates and the easing of foreign investment regulations can be directly documented. as can interest-rate wedges

arising from the first of these. More indirectly, their effects can be observed in the breakdown in the correlation between national savings and investment ratios (55). The nature of net capital flows and the external assets and liabilities of individual countries can be monitored, as can their responsiveness to interest-rate differentials, tax wedges and other measures of financial returns (56). More detailed information on cross-border transactions in securities, banks' external assets and liabilities, foreign direct investment, etc. are also useful for monitoring compositional changes.

206. The second category of indicators, however, covers a broader range of issues and statistical material. It is possible to monitor what is happening. Deregulation has given rise to sharp changes in the levels and patterns of financing. But detailed information on the sources (borrowing from intermediaries, note and bond issues, borrowing abroad, share issues, etc.) and uses (financing of fixed investment, consumption, housing) of liabilities give little insight into whether allocative efficiency is actually being improved.

207. For example, the rapid growth in household and particularly corporate debt in some countries that have moved quickly towards financial deregulation has been associated with a fall in net national savings and greater dependence on foreign savings. The allocative efficiency of this change depends in large part on the extent to which the debt is being channelled into investments with sufficiently high returns. Non-financial corporate borrowing and equity issues are shown for selected countries in Table 38. In the United States borrowing rose at an average annual rate of about 13 per cent from 1984 to 1987, while business fixed investment grew on average by about 6 per cent per annum. One possible explanation for this is that businesses began to rely more heavily on debt as opposed to equity finance. Indeed, the corporate non-financial debt to equity ratio rose sharply over this period. The reasons for this change relate to a bias in corporate taxation favouring debt over equity financing, together with a spate of leveraged buyouts (57).

208. This particular example serves to illustrate the potential complexity of developing financial indicators of allocative efficiency. First, it may require more analytical calculations of relative rates of return to which financial flows respond -- in this case relative costs of debt _versus_ equity financing, including the interaction between inflation and the taxation system. There will be strong overlaps with indicators in other areas such as taxation. Second, it may require indicators of productivity gains and success rates associated with corporate (and other) borrowing, as opposed to any linkages that might be established between borrowing and new fixed investment (or other forms of expenditure). This latter area is also complex and may require more specialised data and analyses. At one level bad loan provisions, bankruptcy rates, etc., give a very broad picture of the extent to which heavier borrowing is allocationally efficient. But it may also be necessary to obtain more microeconomic indicators of productivity gains associated with heavier use of the financial system (58).

209. Another way to look at these problems is to ask whether the pricing of financial instruments is appropriate, particularly with respect to risk. A major benefit of deregulation is that funds are allocated, at a price, to areas with potentially higher returns, but higher risks (small firms, R&D, etc.). Inefficiencies associated with credit rationing are removed. But

situations of costly financial stress could arise if risks are not appropriately reflected in financial prices. The underpricing of risk would be allocationally inefficient, leading the financial system towards excessive exposure to high-risk activities. While it is a relatively simple matter to collect data on interest rates charged to different categories of borrowers, credit rating assessments, etc., the construction of more analytical indicators is somewhat more elusive. It is difficult to measure risk directly, so that one is forced to rely on indicators of the extent to which yields have compensated investors for default risks over past historical periods. These sorts of indicators are both approximate and backward looking.

b) Operational efficiency

210. Operational efficiency concerns the extent to which financial services are being provided at reduced costs as deregulation and competition progress. Gains in operational efficiency may be expected to derive from factors which increase competition or, alternatively, from factors which break down barriers that inhibit organisational changes consistent with cost reductions through economies of scale. Two types of indicator are of particular interest:

-- those which measure the cost of financial intermediation directly;

-- those which measure the productivity performance of the financial services industry.

211. The first set of indicators, those which measure the costs of financial intermediation and services directly, include interest-rate margins for banks, broking fees for equities and securities firms, and fees and commissions for particular services. Table 39 presents the example of banks' interest-rate margins, typically measured as interest received less interest paid over average total assets (59). In principle, increased competition should reduce banks' interest margins to the extent that they are forced to offer lower rates for lending and pay higher rates to attract deposits. The presence of economies of scale and organisational changes to improve productivity also reduces bank operating costs and should be reflected in reduced interest-rate margins, provided that financial markets are sufficiently flexible.

212. However, a casual inspection of Table 39 shows a very mixed picture between countries, with little apparent progress in some that have taken substantial steps in the direction of deregulation. To a large extent this reflects the poor quality of the measure employed. For example, it is not independent of cyclical influences which may drive a wedge between borrowing and lending rates. Tighter credit market conditions will drive up new lending rates. But countries differ in the extent to which interest received rises because of a different mix between fixed and floating-rate loans. Similarly, there will be differences in the extent to which interest paid rises, depending on the nature of deposit rate regulations, existing competitive structures and the extent to which tax and reserve requirement wedges between countries have given an incentive to finance domestic lending from cheaper foreign sources.

213. The situation is not greatly helped by moving to specific interest rates on new loans and borrowings. This is because of the wide range of borrowing and lending rates from which to choose "representative" rates, and

the difficulty in obtaining details, which are often considered proprietary information, of the precise terms and conditions on which major bank transactions are conducted. Similar problems apply in principle to comparable measures for the cost of bond issues for securities firms, commissions for stockbroking firms and the like. Well constructed representative time series for these variables are not readily available in all countries.

214. The second set of indicators relate to measures of productivity within the financial system. The specific example of bank productivity (measured by the ratio of operating expenses to gross incomes) is shown in Table 40. However, such measures of productivity within the financial system suffer from the defect of finding an appropriate scale variable. In the example given in the table, the income measure is subject to important cyclical influences that diminish its usefulness as a structural indicator. An alternative is to use operating costs as a percentage of bank assets. This, however, suffers from the limitation that bank assets are not homogeneous -- the simple addition of dollar amounts would not be an appropriate scale variable. For example, a rapid expansion of interbank transactions could inflate the apparent size of bank assets, and would not reflect increased productivity in the same way that lending to non-financial customers would.

215. It is also important to monitor aspects of technological change directly, since they bear on the operational efficiency of a wide range of financial entities. Of particular interest here is the payments system -- the framework of facilities and procedures that enable obligations to be settled in an efficient and assured manner. Electronic payments systems and automated clearing houses are expanding rapidly, linking different firms within the same financial sector and linking different sectors, as well as covering both retail and wholesale financial activities. Since there are important economies of scale in these systems, it is important to monitor access of all financial institutions to unified systems as well as the pricing of these services. There is not as yet a well-defined set of indicators that are comparable between countries.

216. Finally, it should be noted that all of these indicators of operational efficiency permit the monitoring of cost and productivity changes over time. They do not indicate unit cost levels associated with any concept of optimal competitive structures -- where financial sectors currently are in relation to long-run cost curves, etc. This requires more analytical studies of costs and scale economies, which have their own set of difficulties in relation to functional forms and measuring relevant concepts such as output, branching, and costs (60).

c) Dynamic efficiency

217. Indicators of dynamic efficiency concern measures of the ability of financial sectors to respond and adapt to changing customer needs by developing new financial services. Very broad indications of innovativeness may be obtained by examining changes in the structure of liabilities of financial institutions. A general example is provided in Table 41, which shows developments in the liabilities structure of banks in a number of countries. A clear understanding of new trends again requires detailed analysis. For example, does the decline in demand deposits in a number of countries reflect changes in banking technology, new financial instruments or

customer disenchantment with remaining regulations on interest rates?
Similarly, the sharp rise in foreign liabilities of banks in most countries
may reflect new business demands in more integrated world financial markets.
or attempts by banks to circumvent taxes and reserves requirements incurred
when financing lending through domestic deposits.

218. Dynamic efficiency gains may also be observed in financial sector asset
developments. However, it is often difficult to see the main thrust of these
through the behaviour of balance-sheet components. Increased competition that
reduces bank margins on traditional balance sheet activities has encouraged
greater attempts to increase income through fees and commissions associated
with off-balance-sheet activity. Banks and other financial institutions have
become increasingly involved in providing note issuance facilities. swaps
futures and options contracts.

219. Table 42 provides some evidence on these markets for new instruments
and illustrates how rapid the development of some instruments has been.
However. the very partial nature of the statistics available and the low
coverage of OECD countries is indicative of a serious problem in this area. A
major constraint on the development of clearer financial indicators is the
lack of comprehensive official statistics on international off-balance-sheet
transactions. Greater international co-operation to establish accepted
definitions and wider coverage would seem to be particularly urgent.

iii) Assessment

220. In considering the above indicators of financial market efficiency. it
is important not to lose sight of useful economy-wide measures of the
contribution of the financial sector to economic activity. There is a great
variety of indicators of the relative size of the financial service sector and
its direct contribution to output, but even here measures are far from
satisfactory (61). More importantly, these overall measures of the size and
contribution of the financial system do not give any insight into the derived
benefits for other sectors of the economy resulting from deregulation and
increased competition. The financial system contributes both **directly** and
indirectly to the generation of income and wealth in the economy. It is also
important to note that economy-wide benefits of financial deregulation should
be considered alongside economy-wide costs, to the extent that new
developments lead to systemic risks of financial market disruption. The
measurement and assessment of settlement risks implied by defaults or failures
in the increasingly complex payments system is a good example. This is
nevertheless a highly specialised area, for which transparent indicators are
not readily available.

221. The monitoring of structural change in the financial system requires
indicators of changes in policies and competitive structures and indicators of
gains in competitive efficiency (allocative, operational and dynamic) implicit
in financial market performance. Most off-the-shelf indicators are too broad
to permit unambiguous conclusions. There is a need to develop a comprehensive
set of internationally-comparable indicators with the help of knowledge from
specialists in the various areas of interest. The question of what can and
should be done in this area is being considered in parallel by the Financial
Markets Committee. and it may be possible for them to develop more refined
indicators for financial markets that would be useful in a broader
surveillance context.

Table 34

INTRODUCTION OF NEGOTIABLE MONEY MARKET INSTRUMENTS
IN SELECTED OECD COUNTRIES

	Period of Introduction			
	Before 1960	1960-1970	1971-1980	1981-1987
Australia		TB (1962)	CD, CP (1973)	
Canada	TB, CD, CP			
Denmark			TB (1976) (a)	
Finland				CD, TB, CP
France				CD, CP (1985), TB (1986)
Greece			CD (1975)	TB (1985)
Italy			TB (1975)	CD (1983)
Japan			CD (1979)	
Netherlands				CD, CP (1986)
New Zealand			CD (1977)	
Norway				TB, CD, CP (1985)
Portugal				TB (1985), CD (1987)
Spain		CD (1960)		TB (1981), CP (1982)
Sweden			CD (1980)	TB (1982), CP (1983)
United Kingdom	TB	$CD (1966) $CD (1970)		$CP (1986)
United States	TB, CP	CD (1970)		

a) Reintroduction after 20 years.

TB = Treasury Bills; CD = Certificates of Deposit; CP = Commercial Paper.

Source: OECD (19891).

Table 35

EXPANSION OF BANKING NETWORKS 1960-1984

	Number of bank offices (a)				Compound annual rates of growth			Density of Networks Number of Bank Offices per 100 000 Inhabitants			
	1960	1970	1980	1984	1960/1970	1970/1980	1980/1984	1960	1970	1980	1984
Australia	6 509	10 037	10 829	10 538	4.4	0.8	-0.7	63	80	80	68
Austria	2 829	3 261	4 971	5 331 (b)	1.4	4.3	1.4 (b)	40	44	66	71
Belgium	1 870	3 151	3 811	3 741 (b)	5.4	1.9	-0.4 (b)	20	33	39	38
Canada	5 060	6 184	7 437	7 331 (b)	2.0	1.9	-0.3 (b)	28	29	31	29
Denmark	2 368	3 465	3 707	3 581	3.9	0.7	-0.9	52	70	72	70
Finland	2 696	3 318	3 376	3 531	2.1	0.2	1.1	61	72	71	73
(c)	4 973	6 221	6 557	6 742	2.3	0.5	0.7	112	135	137	138
France	..	..	24 725 (d)	25 385 (d)	..	..	0.9 (d)	..	..	45	46
(c)	..	..	41 895 (d)	42 573 (d)	..	..	0.5 (d)	..	..	77	77
Germany	30 027	40 800	44 666	44 698	3.1	0.9	0.02	54	67	73	73
(c)	56 340	65 867	63 539	62 625	1.6	-0.4	-0.4	101	108	103	102
Italy	9 211	10 807	12 175	12 965	1.6	1.4	1.6	19	20	22	23
Japan (e)	31 943	35 597	40 697	44 078 (b)	1.1	1.3	1.6 (b)	34	34	35	37
(c)	47 721	56 148	62 984	67 050 (b)	1.6	1.2	1.3 (b)	51	54	54	56
Netherlands	3 459	5 177	7 399	6 529	4.1	3.6	-3.1	30	40	52	45
(c)	5 640	7 700	9 430	9 220	3.2	2.0	-0.6	49	59	67	64
Spain	..	12 642	24 566	31 117	..	6.9	4.8	..	37	66	81
(c)	..	14 105	26 165	32 867	..	6.4	4.7 (b)	..	42	70	85
Sweden	3 535	4 238	3 659	3 557	1.8	-1.5	-0.7	47	53	44	43
Switzerland	2 412	2 979	3 784	3 874	2.1	2.4	0.6	45	46	59	60
United Kingdom (f)	..	..	19 796	20 541 (b)	..	..	0.7 (b)	..	..	35	37
(c)	..	..	42 435	42 204 (b)	..	..	-0.1 (b)	..	..	76	75
United States	23 688	35 112	53 189	56 866	4.0	4.2	1.7	13	17	23	24

a) Head offices plus branches.
b) 1985 and 1980-85, respectively.
c) Including post offices offering retail banking services.
d) 1982, 1985; 1982-1985.
e) 1960 partly estimated.
f) Including building societies.

Source: OECD (19891).

Table 36

EXPANSION OF INTERNATIONAL BANKING NETWORKS 1960-1986

(at end-period)

Host country	Foreign Banking Presence in OECD Countries (a)					
	1960	1970	1980	1984	1985	1986
Australia	3	3	2	2	10	18 (b)
Austria	..	..	17	22	22	22
Belgium	14 (c)	26	51	56	57 (d)	..
Canada	0	0	0	..	57 (d)	..
Denmark	0	0	5	8	8	8
Finland	0	0	0	3	..	..
France	33	58	122	147	148	152
Germany	24	77	213	..	283 (d)	..
Greece	2	3	18	..	19	..
Italy	1	4	25	34	36	36
Japan: banks	34	38	85	108	114	115
Japan: securities firms	..	..	5	11	22	38
Luxembourg	3	23	99	103	106	110
Netherlands	1	23	39	42	41	42
New Zealand	3	3	3	3	3	3 (e)
Norway	-	-	-	-	/	7
Spain	4	4	25	45	47	49
Sweden	0	0	0	0	0	12
Switzerland	8	97	99	119	120	125
United Kingdom	51 (f)	95	214	..	293 (d)	..
United States (g)	..	79 (h)	153	233	234	243

a) Number of branches and subsidiaries if not otherwise indicated; subsidiaries and branches of overseas subsidiaries are generally excluded.
b) End-June 1988; does not include savings bank subsidiaries.
c) End-1958.
d) End-June 1985.
e) 1987: 12.
f) End-1962.
g) United States branches and agencies of foreign banks.
h) 1975.

Source: OECD (19891).

Table 37

SHARE OF FIVE LARGEST BANKS IN TOTAL ASSETS (T)
AND DOMESTIC ASSETS (D) OF ALL BANKS

(in per cent)

		End-1960	End-1984
Australia (a)	(D)	60	64 (b)
Austria	(T)	27	36
	(D)	16	30
Belgium (a)	(T)	69	45
	(D)	70	60
Denmark	(T)	46	57
Finland	(T)	..	97 (c)
	(D)	..	59 (c)
France	(T)	..	52 (d)
	(D)	..	48 (d)
Germany	(T)	18 (e)	26
Greece	(T)	96	83
	(D)	95	84
Ireland	(T)	81	69
Italy	(T)	38 (f)	36
	(D)	36 (f)	32
Japan	(T)	33	33
	(D)	33	28
Netherlands	(T)	79	97
	(D)	78	97
Portugal (g)	(T)	52	55
	(D)	54	56
Spain (h)	(T)	42	43
	(D)	42	42
Sweden	(T)	79	89
	(D)	82	86
Turkey	(T)	..	63
United States	(D)	15	13

a) Three largest banks.
b) End-1985.
c) End 1987: savings banks and co-operative banks count as one
   institution each.
d) End 1987.
e) End-1961.
f) End-1965.
g) Four largest banks.
h) End-1987: (T) 40; (D) 43.

Source: OECD (19891).

Table 38

NON-FINANCIAL CORPORATE DEBT RATIOS AND ANNUAL PERCENTAGE CHANGE

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
UNITED STATES																		
Debt percentage change	8.9	6.9	8.0	14.2	10.8	2.9	7.0	12.1	10.5	9.6	7.1	11.7	4.3	5.9	17.0	11.4	12.9	10.5
Equity percentage change	17.9	9.4	9.4	11.8	28.0	11.5	10.4	10.3	15.9	14.8	15.0	12.1	4.1	3.1	3.9	1.8	1.7	2.7
Debt/equity ratio	0.46	0.45	0.45	0.46	0.40	0.37	0.35	0.36	0.34	0.33	0.30	0.30	0.30	0.31	0.35	0.39	0.43	0.46
JAPAN																		
Debt percentage change		17.5	22.9	19.1	20.4	13.2	10.0	4.3	9.2	11.2	6.3	11.7	6.4	5.5	8.4	9.2	8.4	
Equity percentage change		10.8	18.4	20.7	27.0	9.5	8.8	6.9	9.6	14.9	13.7	11.2	4.1	7.7	9.3	15.6	9.5	
Debt/equity ratio	2.95	3.13	3.25	3.20	3.04	3.14	3.18	3.10	3.09	2.99	2.79	2.81	2.87	2.81	2.79	2.63	2.60	
GERMANY																		
Debt percentage change		18.1	34.9	19.3	42.2	9.8	-11.3	16.6	1.8	11.5	15.5	18.9	17.5	11.0	6.3	6.5	4.4	
Equity percentage change		16.6	24.8	15.8	35.6	2.9	-12.1	14.4	15.4	17.3	12.4	7.7	6.0	12.9	13.1	10.9	21.8	
Debt/equity ratio	1.11	1.12	1.21	1.25	1.31	1.40	1.41	1.44	1.27	1.21	1.24	1.37	1.52	1.49	1.40	1.34	1.15	
FRANCE																		
Debt percentage change	16.5	12.3	11.8	7.9	3.6	0.5	8.2	2.9	7.3	8.9	7.2	13.8	-0.4	2.6	3.5	2.1	-0.3	2.0
Equity percentage change	8.4	9.8	6.9	6.8	6.8	6.2	8.4	4.9	5.2	6.6	5.5	7.0	3.8	6.9	8.4	4.7	5.5	-0.6
Debt/equity ratio	1.64	1.67	1.75	1.76	1.71	1.62	1.62	1.59	1.62	1.65	1.68	1.78	1.71	1.64	1.57	1.53	1.45	1.49

Source: Non-financial Enterprises Financial Statements, OECD Financial Statistics Part 3, 1988.

Table 39

DEVELOPMENTS IN INTEREST RATE MARGINS (a)

(Percentages)

	1980	1981	1982	1983	1984	1985	1986	1987
United States*	n.a	2.59	2.92	3.11	3.01	3.31	3.29	3.10
Japan*	1.39	1.29	1.36	1.29	1.22	1.07	1.17	1.12
Germany*	n.a	n.a	2.19	2.49	2.40	2.33	2.43	2.18
United Kingdom*	n.a	4.03	3.69	3.49	3.42	3.57	3.68	3.72
France*	n.a	2.45	2.50	2.42	2.30	2.27	2.45	2.11
Italy	n.a	n.a	n.a	2.52	2.58	2.45	4.10	n.a
Canada	n.a	n.a	2.24	2.66	2.56	2.65	2.75	n.a
Belgium	2.03	1.84	1.70	1.61	1.60	1.53	1.62	n.a
Netherlands	2.27	2.18	2.25	2.40	2.23	2.20	2.42	n.a
Sweden	2.26	2.15	1.99	2.27	2.21	1.99	2.62	n.a
Switzerland*	n.a	n.a	1.12	1.08	1.10	1.14	1.07	0.99
Australia*	n.a	n.a	n.a	4.13	4.26	4.11	3.93	4.01
Greece	2.47	2.03	2.02	1.99	1.73	1.35	1.27	n.a
Portugal	2.69	2.56	2.45	1.85	1.86	2.37	2.77	n.a
Spain	5.14	5.15	4.60	4.48	4.34	4.18	4.50	n.a

a)   interest received - interest paid
            average total assets

Source: OECD, "Bank profitability: financial statements of banks", and
    Salomon Brothers, International Bank Data Base (for countries marked
    with an asterisk).

Table 40

DEVELOPMENTS IN BANKS' PRODUCTIVITY (a)

(Percentages)

	1980	1981	1982	1983	1984	1985	1986	1987
United States	66.5	68.7	69.6	69.1	68.4	66.5	66.8	67.8
Japan*	72.0	68.3	62.7	61.5	66.2	66.7	59.5	59.0
Germany*	n.a	n.a	72.7	64.2	65.2	66.2	67.3	73.3
United Kingdom*	n.a	70.5	70.5	70.4	68.4	66.7	66.5	67.6
France*	n.a	69.4	69.1	69.6	69.1	68.5	67.0	73.3
Italy	70.6	64.5	67.9	77.7	77.1	73.7	68.6	n.a
Canada	n.a	n.a	68.5	60.3	61.7	59.8	58.9	n.a
Belgium	85.2	85.3	83.2	83.3	81.5	80.7	78.6	n.a
Netherlands	66.3	65.1	64.7	61.5	62.5	62.7	65.9	n.a
Sweden	n.a	61.8	68.6	56.4	65.1	61.9	55.2	n.a
Switzerland*	n.a	n.a	n.a	n.a	75.4	74.7	75.3	77.3
Australia*	n.a	n.a	69.1	72.3	68.9	68.5	68.9	65.8
Greece	65.0	70.7	74.0	76.5	76.0	78.6	75.0	n.a
Portugal	54.9	56.0	55.4	65.3	69.7	69.5	66.2	n.a
Spain	66.4	65.9	65.3	62.1	62.3	62.8	68.3	n.a

a) Operating expenses/gross income.

Source: Directorate for Financial, Fiscal and Enterprise Affairs; Saloman Brothers International Bank Data Base.

Table 41

LIABILITY STRUCTURE OF THE BANKING SECTOR

(as per cent of total liabilities)

	1975	1980	1985	1987
United States				
Checkable deposits	26.2	20.1	18.5	18.5
Time&savings deposits	35.6	32.5	40.8	38.7
Money market instruments	18.9	23.2	21.6	19.9
Bonds	1.7	1.6	3.1	3.0
Foreign liabilities	7.3	9.9	8.1	10.3
Japan				
Demand deposits	25.8	20.3	16.3	14.9
Time deposits	50.6	53.5	54.4	53.9
Certificates of deposit	-	0.8	2.0	1.6
Bonds	7.3	7.9	8.4	8.0
Foreign liabilities	5.5	7.3	10.2	16.0
Germany				
Demand deposits	11.8	10.0	9.3	9.7
Time deposits	39.9	35.2	33.8	34.2
Bonds	28.6	32.9	35.5	36.1
Foreign liabilities	5.9	8.9	8.3	8.4
United Kingdom				
Demand deposits	10.8	8.9	8.3	10.7
Time, savings & foreign currency deposits	21.0	18.8	15.1	17.9
Foreign liabilities	62.3	67.5	70.7	65.2
Italy				
Demand deposits	41.2	46.0	41.0	43.8
Time & savings deposits	39.5	37.1	33.6	32.5
Foreign liabilities	9.1	13.5	16.1	15.0
Canada				
Demand deposits	22.7	12.3	18.3	20.3
Savings & foreign currency deposits	53.1	55.7	45.7	46.8
Foreign liabilities	14.5	24.5	28.8	26.1

Table 41 (continued)

	1975	1980	1985	1987
Australia				
Demand deposits	21.8	22.4	13.2	12.4
Time & savings deposits	70.9	68.6	68.1	57.6
Foreign liabilities	0.7	1.0	3.9	10.1
Belgium				
Demand deposits	14.9	8.1	5.5	5.9
Time & foreign currency deposits	28.9	21.2	15.3	17.4
Bonds	3.7	5.5	5.8	5.4
Foreign liabilities	50.4	63.3	73.7	71.3
Greece				
Demand deposits	10.5	8.8	5.3	
Time, savings & other deposits	70.7	63.5	61.5	n.a
Foreign liabilities	13.5	21.7	25.6	
Netherlands				
Demand deposits	18.1	10.8	11.2	11.7
Time, savings & foreign currency deposits	50.2	42.2	41.4	39.8
Bonds	1.5	7.8	6.4	8.4
Foreign liabilities	26.1	33.9	32.9	32.1
Portugal				
Demand deposits	37.4	26.0	15.8	
Time & savings deposits	51.2	65.8	72.8	n.a
Foreign liabilities	0.8	3.3	5.8	
Spain				
Demand deposits	25.7	21.0	15.0	16.6
Time & savings deposits	59.4	60.0	43.2	43.5
Bonds	4.0	2.3	22.9	21.3
Foreign liabilities	6.5	13.2	11.4	10.4
Sweden				
Demand deposits	12.4	12.5	9.4	
Time, savings & foreign currency deposits	68.0	61.1	54.4	n.a
Foreign liabilities	5.8	15.0	24.4	
Switzerland				
Demand deposits	9.0	8.1	6.3	6.9
Time & savings deposits	35.9	34.1	38.9	38.4
Bonds	12.8	11.7	21.4	21.7
Foreign liabilities	23.4	25.1	24.2	22.5

Source: IMF, International Financial Statistics.

Table 42

DEVELOPMENT OF FINANCIAL FUTURES MARKETS 1981-1986

Country Type of Contract	Number of Traded Contracts (1000)					
	1981	1982	1983	1984	1985	1986

I. UNITED STATES

1. Short-term interest rate futures

	1981	1982	1983	1984	1985	1986
US Treasury Bills (90 days) (a)	5 631	6 599	3 790	3 292	2 413	1 815
Domestic CDs (90 days) (a)	423	1 556	1 079	929	84	3
Euro-$ deposits (3 months)	15	324	891	4 193	8 901	10 825
TOTAL [Number of types of contracts](c)	6 069 [8]	8 479 [6]	5 760 [4]	8 414 [4]	11 398 [4]	12 643 [4]

2. Long-term interest rate futures

	1981	1982	1983	1984	1985	1986
US Treasury Notes (6.5-10 years) (a)	0	881	815	1 662	2 860	4 426
US Treasury Bonds (b)	14 017	17 159	19 817	30 214	40 745	53 067
GNMA Mortgages	2 293	2 056	1 692	862	84	24
TOTAL [Number of types of contracts](c)	16 310 [7]	18 040 [5]	22 324 [6]	32 738 [5]	43 689 [4]	57 517 [5]

3. Foreign exchange futures

	1981	1982	1983	1984	1985	1986
[Number of types of contracts](c)	6 123 [12]	6 689 [7]	11 072 [12]	13 789 [12]	16 912 [12]	19 032 [13]

4. Stock index futures

	1981	1982	1983	1984	1985	1986
[Number of types of contracts](c)	0 [0]	4 912 [6]	12 753 [6]	18 532 [6]	21 934 [10]	25 390 [10]

5. GRAND TOTAL

	1981	1982	1983	1984	1985	1986
	28 502	38 120	52 709	73 473	93 833	114 582

II. UNITED KINGDOM (LIFFE only)

1. Short-term interest rate futures

	1982	1983	1984	1985	1986
Three Month Sterling	40	201	341	493	959
Three Month Eurodollar	122	459	1 024	1 282	1 107
TOTAL	162	660	1 365	1 775	2 065

2. Long-term interest rate futures

	1982	1983	1984	1985	1986
Long Gilt	29	527	775	685	2 618
Short Gilt				43	61
US T-Bond			167	627	1 846
Japanese Government Bond (introduced in 1987)					
TOTAL	29	527	942	1 355	4 525

3. Currency futures

	1982	1983	1984	1985	1986
Sterling	42	122	145	117	41
Deutschemark	7	26	28	20	16
Dollar Mark					1
Swiss Franc	1	12	13	7	6
Japanese Yen	1	19	12	10	8
TOTAL	51	179	198	154	71

4. Stock index futures

	1982	1983	1984	1985	1986
FT-SE 100			73	89	122

5. GRAND TOTAL

	1982	1983	1984	1985	1986
	242	1 366	2 578	3 373	6 483

Table 42 (continued)

Country Type of Contract	Number of Traded Contracts (1000)					
	1981	1982	1983	1984	1985	1986

III. AUSTRALIA

1. Interest rate futures

90 Day Bank Bills	28	145	161	172	594	1 074
Ten Year Treasury Bonds				2	242	1 431
Two Year Treasury Bonds (delisted March 1986)				107		
Three Year Treasury Bonds (commenced trading 17/5/88)						

2. Currency futures

US Dollar (delisted 16/9/88)	32	43	43	60	59	44
Australian Dollar (commenced trading 23/2/88)						

3. Stock index futures

All Ordinaries Share Price Index Futures			180	237	282	466

4. Linked contracts

US Treasury Bonds (linked with LIFFE)						7
Euro-dollars (linked with LIFFE)						1
Comex Gold (linked with Comex)						4

5. GRAND TOTAL

	60	188	384	578	1 177	3 027

IV. FRANCE

Long-term interest rate futures

Treasury bonds (10 years)
1 600 (d)

V. JAPAN

Long-term interest rate futures

Treasury bonds   45 (e)
937 (e)

a) Chicago Mercantile Exchange only.
b) Chicago Board of Trade and Midamerican Commodity Exchange.
c) Contracts in the same or similar instruments traded on different exchanges are counted separately.
d) Operations started in March 1986.
e) Yen 1 000 billion; Trading started on 19th October 1985.

Sources: OECD (19891).

IX. CONCLUSIONS

by Andrew Dean

The indicators approach for structural surveillance

222.   The motivation behind the quest for structural indicators has been the desire to be as objective as possible in the multilateral surveillance of economic policies in the structural area. The surveillance of structural policies by the Economic Policy Committee and in country reviews at the OECD, which has now been taking place for several years, has shown the need for quantification of the stance and direction of changes in policy. Such quantification necessarily involves the detailed study and review of particular sectors and policies.   The Economic Policy Committee specifically asked whether certain summary statistics could be developed that would serve as key indicators of structural policies and of progress in structural reform. This paper has examined both the availability of structural indicators in six selected areas and the role that they might play.

223.   The search for structural indicators has parallels in the search for indicators to guide macroeconomic surveillance. Both forms of multilateral surveillance involve the monitoring of policies and performance with peer pressure being used to move policies in more acceptable directions. An important element of peer pressure is the ability to point to internationally-comparable cross-country indicators which highlight relative weaknesses in structural policy and performance. Where such comparisons are not possible, it is still useful to have an assessment of how indicators have developed through time in individual countries.

224.   An important practical consideration for such work is therefore not only the usefulness of the indicator per se -- the main focus of this review -- but also the frequency of data collection. In the macroeconomic sphere, where many of the indicators are by products of established national accru s and other data systems, the frequency issue is not in general a constraint. But for structural surveillance, the frequency of potenti; indicators can be a more serious concern, especially if the production of such indicators is resource-intensive. One must also recognise that the effects of structural policies may become visible over rather longer time horizons than for macroeconomic policies. A more fundamental problem is that one needs to have an appropriate yardstick with which to judge policies. One should not underestimate this difficulty, even in the macro-indicator approach, but the problem may be more serious for structural policies.

How to judge structural indicators

225.   Any assessment of the role of structural indicators in the surveillance process must first confront some fundamental questions about the objectives of policy.   The maximisation of welfare on a sustainable basis is a generally-accepted starting point but one that lacks immediate operational significance. It has therefore been necessary to consider the analytical underpinnings of welfare economics in order to establish more specific guidelines for structural indicators.

226. The review of the relevant theory in Section II of the paper and of the specific areas in the following sections suggests that in some cases, but not all, it is possible to locate a local optimum (from the efficiency point of view) and to measure the divergence between the actual and optimal position in terms of some policy variable. This is most clearly the case in analysis of price wedges where, in terms of partial equilibrium analysis, the wedge itself represents the degree of distortion introduced by policy, though it may not necessarily be a good indicator of the welfare losses entailed. In such cases the information-content of the indicator will be high and implications for policy relatively clear. A strong interpretation is thus possible. In many cases, however, the existence of an optimum or divergences from it will be less easy or impossible to measure. This may be for theoretical reasons involving second best considerations or because the relevant magnitudes are simply not directly measurable. In these cases, it may be necessary to rely on much less direct indicators or even crude proxies where the conclusions to be drawn may not go beyond identification of the need for a thorough examination. The paper has attempted to differentiate between the two cases.

227. A distinction has been drawn between policy indicators and performance indicators and has been used in the review of structural indicators in selected areas. Although such a distinction cannot be hard-and-fast -- there may be more of a continuum -- it is useful to be able to distinguish the two. Performance indicators will in general be descriptive and diagnostic, providing information on how the economy or a particular sector or market is performing and sometimes being suggestive of the need for policy change. Policy indicators, in contrast, will be more directly linked to policy per se and may be able to indicate the way in which policy should change, but provide less information on the relative size of the economy-wide benefits.

The general lessons for indicators

228. There are several general lessons that can be drawn from the review of the analytical background to indicators and from the six case studies:

1) There are many possible structural indicators; the difficulty is to find ones that are easy to understand and calculate and to interpret them in sensible and useful ways.

2) Few indicators are so clear and transparent that they warrant a strong (normative) interpretation, i.e. to suggest that high or low values of the indicator are good or bad; usually there are ambiguities that mean that the indicators must be interpreted in conjunction with other information on institutional or structural features of the market; in certain cases, such indicators may be so ambiguous that it would be better to admit that the problems posed and questions asked of structural policy are so complex that only detailed study and assessment are capable of providing answers.

3) Those indicators that warrant the strongest interpretation are generally those that are fairly direct measures of policy, with the most useful being those where there are established principles about optimal policy design; most indicators of performance have less to say about policy because they are indirect and/or ambiguous and it is difficult to identify the benchmark to which they should be related.

4) Full comparability across countries of structural indicators is often difficult, both because of data limitations and because the full information about the specific economic environment lying behind the indicator can rarely be captured.

5) The coverage of suitable indicators, even allowing for their development in promising areas, is incomplete. Hence it is important for balanced surveillance that it not be confined to the more easily quantified aspects of policy. Furthermore, it is necessary to recognise that, even where good indicators are available, their frequency may vary significantly across different aspects of structural policy.

6) Nevertheless, in those cases where strong interpretations are possible, indicators can play an important role in highlighting problems, measuring progress in structural policy and suggesting ways of promoting structural adjustment.

Specific lessons for indicators from the case studies

229. Six of the areas identified in the OECD's June 1989 Report on Structural Surveillance have been treated as case studies in assessing the role of structural indicators -- taxation, trade, industry, agriculture, labour markets and financial markets. The conclusion to be drawn from these six studies is that the most useful indicators are those that directly indicate distortions induced by policy, such as price wedges between producer and consumer prices which can arise from taxes, subsidies or border measures. The crucial issue is how to identify whether the policy is amenable to quantification by indicators or not. The review of the six areas has shown that the answer is sector or topic-specific. As a general rule, policy indicators, even where it is difficult to link them to micro- or macro-performance, are more relevant for structural surveillance than performance indicators. Hence those areas where the measurement of policy is most tractable will generally be those where structural indicators are more likely to have a role.

230. In the taxation area, it is relatively easy to establish the stance of policy (if not its ultimate effects) and there are clear ideas about the desirable properties of tax systems. Furthermore, this is an area where the OECD has done much to establish statistics which are internationally comparable, although more could and should be done. Useful indicators can therefore be established in this area, although the qualifications and warnings set out in Section III section must be borne in mind. The majority of the taxation indicators surveyed are fairly directly related to policy, which is why this is an area where an important role can be envisaged for structural indicators.

231. The labour-market area is perhaps at the opposite extreme. Few indicators are directly related to policy and it is often not clear what th·· desirable values for them should be; interpretation is thus difficult. This is because the nature of the market, the pervasiveness of labour in the economic process (as factor of production, income recipient and consumer) and institutional diversity mean that all judgements must be heavily qualified. The policy indicators that are available concerning labour markets -- such as

minimum wages, unemployment compensation provisions, marginal tax rates on labour use, and outlays on active labour-market programmes -- are in general not easy to interpret because it is difficult to define any ideal benchmark to which to relate such indicators. On the other hand, there are many performance indicators which can be combined with other information on policy and institutions to provide an important input to the surveillance process. While interpretation causes some problems, there is a lot of relevant statistical information, currently being improved or gathered in a more coherent way, that can be used to judge the effectiveness of labour markets. But the key point is that a limited number of summary indicators may not provide clear enough messages in this area.

232. The other four areas are ones that lie between these two poles as regards the potential usefulness of structural indicators. In goods markets, covered in the sections on Trade, Industry and Agriculture (Sections IV to VI), it is possible to find a limited number of useful policy indicators but there are others where interpretation is not straight-forward. There are also many performance indicators that may be useful for monitoring the way economies or particular sectors are developing but not for drawing normative conclusions for the purposes of surveillance, though the judicious use of a combination of both sorts of indicator may provide useful insights into structural policy.

233. In the **trade** field, a variety of different indicators of government interference in trade are feasible, but many of them are not readily available and to calculate them would require a lot of information and resources. Measures of effective protection and assistance provide potentially richer information than simpler measures such as nominal tariff rates and NTM coverage ratios, while more complex general equilibrium measures, though providing the richest information, are also the most resource-intensive and from that point of view least accessible. With the diminishing importance of tariffs, the key need in this area is to be able to estimate the equivalents of non-tariff measures and subsidies. All of the more sophisticated indicators of trade policy depend on having good underlying data on what trade policies are, an area which therefore needs to be developed. There are many performance indicators, both direct and indirect. Though they convey much information about structural trends and economic performance more generally, they cannot be easily used to indicate the impact of trade policy and are therefore of only limited use for structural surveillance.

234. In the case of **industry**, the trade measures are of course an important indicator of policy-induced distortions. As regards subsidies, there is the need for both agreement on a common definition and then efforts to provide measures that can give a direct and relevant indication of the impact of government policy and potential resource misallocation. This is an area where some further work is already in train, but where a good deal of further work would be necessary if the relevant indicators are to be used to their fullest. Concerning other aspects of industry, competition policies do not seem likely to be an area where it is possible to either find or develop adequate summary indicators of policy. The message instead is that surveillance of competition policies requires rather detailed examination of the sort already carried out in the Directorate for Financial, Fiscal and Enterprise Affairs and in studies elsewhere. The voluminous material on R&D expenditure is rather difficult to interpret in the context of structural indicators because one needs to

establish the clear basis for optimal government involvement in this area. This suggests that surveillance in this area too will continue to rest heavily on the detailed work of the relevant Directorates. The industrial field is also one where there is a proliferation of performance indicators. While these can provide useful insights on structural changes, they are not often enlightening as regards policy and so are also of only limited use for structural surveillance.

235. In the case of **agriculture**, special efforts have been made to provide clear measures, broadly comparable across countries, of assistance to the agricultural sector arising from government policy. The PSE and CSE measures developed by the OECD Agriculture Directorate are a key element in the established process of monitoring of agricultural policies. While such measures have their limitations, these are well recognised and it is possible that the PSEs/CSEs can be refined or extended to deal with some of the reservations commonly expressed. The advantage of the measures as regards surveillance is that they are relatively transparent, are generally accepted as providing useful and relevant information and can now be produced and updated quickly for the most recent year. They also provide the starting point for more ambitious assessments of the effects of agricultural policies and their economic welfare implications, such as the one presented to the Working Party in the spring.

236. Finally, in the area of **financial markets**, there is a proliferation of performance indicators but few solid unambiguous policy indicators. Most of the currently available indicators need to be interpreted in the light of institutional arrangements. Though they may provide some evidence of the way in which the recent trends to financial market liberalisation and globalisation have played themselves out in the sector, they do not in general provide sufficient information to make judgements about policy. Efforts are being made to establish greater international comparability of data, but a major handicap is the lack of comprehensive statistics on off-balance-sheet transactions. The many indicators of performance in the financial sector provide some evidence of the effectiveness of policy, but it would be useful to have indicators which were more directly related to policy. This is nevertheless an area where more effort could usefully be made over the coming years.

237. **Summing up** the case studies, the development of quantitative indicators that measure distortions due to policy seems to be most tractable in the fields of taxation and trade. The tax and trade indicators are also relevant for the surveillance of industry and agriculture. These are both areas where the measurement of a diverse set of instruments, most importantly subsidies and border protection, is in principle feasible, with the main constraint on development being resources. The example of PSEs shows what can be achieved. In labour and financial markets, on the other hand, institutional differences and the complexity of market interactions are such that cross-country comparability is more difficult to achieve, or the series themselves are more difficult to interpret. Hence, it is not clear that indicators would give an appropriate reading of policy. These are both areas where the analytical paradigm set out in Section II of the main paper and reviewed briefly above may therefore be less relevant in practice and where surveillance will have to continue to rely on in-depth quantitative assessment.

238. A final cautionary note should be sounded concerning problems that can arise when the effects of policies cannot be measured in an ideal way and recourse is made to proxies. When a variable is picked as an indicator because of its past relationship with a factor of more fundamental importance, but harder to measure, there is a danger that policies will aim to make the indicator value look good through means that fail to improve the fundamental situation and may even make it worse. In such circumstances, processes of peer pressure and international negotiation may mean that policies are changed with an eye to the maximum improvement in the indicator value rather than the most efficient reorientation of such policies and allocation of resources.

The way forward on the use of structural indicators

239. There is clearly a useful, albeit rather limited role for indicators in the evolving process of structural surveillance. It has been possible to identify certain relatively robust and timely indicators, for example those in the fields of taxation and agriculture, that are already being used in the appraisal of structural policy. It has also been possible to point to work of the same kind that could be done in other areas, such as industry and trade, though major efforts would be needed to put together the necessary data. On the other hand, it must be acknowledged that there are some areas, most notably the labour market, where it is less easy to identify or design clear, meaningful summary indicators that could play the same role. Given the diverse quality of existing indicators and the problems of interpretation that surround nearly all indicators, it thus seems unlikely that multilateral surveillance of structural reform would come to be focused on just a small, standard set of simple summary indicators. But it is clear that the development of suitable indicators, where feasible, can be an important element in the surveillance process.

240. Where work on indicators is to be taken further within the OECD, it clearly require a major co-operative effort between the OECD Secretariat and Member countries. The PSE/CSE work provides a model for this co-operation and the EEC and EFTA exercises in the field of industrial subsidies show that progress can be made in other fields.

241. It is inevitable that there will be an increasing amount of quantification of the impact of structural policies and performance. This will probably occur in two ways. One will be the continued search for useful summary indicators of policy of the sort identified above. The other will be the development or extension of in-depth quantitative analyses of particular industries, sectors or markets, for which there will often be no substitute given the complexity of markets and the interactions involved. This will include the extension of modelling work to assess the dynamic impacts of structural policies in ways that should greatly enhance the knowledge of particular sectors and markets.

242. Within the OECD, the development of new indicators that could be of use in the structural surveillance process for the Economic Policy Committee (EPC), could be aided by ongoing work both by the Economics and Statistics Department, under the auspices of the Economic and Development Review Committee (EDRC) and the Economic Policy Committee (EPC), and by the other specialised Committees and Directorates of the Organisation.

243.   This paper has broadly confirmed the view spelt cut in last spring's EPC Report, namely that quantitative indicators are not a substitute for in-depth assessments but that they can play a useful role as simple and objective measures of the costs and benefits of policies and of progress towards a more favourable balance. While a more systematic use of quantitative indicators might seem attractive, the review above has suggested that there will still be areas where it is unlikely that simple and objective indicators can be developed. In those areas, it is necessary to pursue more detailed and sophisticated quantitative analysis of the data. But in other areas it would be useful to push ahead and try to establish structural indicators that can give clear messages about policy and, where possible, be comparable across countries.

NOTES

1. The role of the OECD in the structural area had been endorsed in 1988 in the Toronto Summit communiqué, which indicated that it would be useful if OECD's surveillance of structural reforms could quantify some of the effects of policy reforms.

2. Macroeconomic indicators became a formal part of the co-ordination process following the Tokyo Summit in 1986 with a listing of ten key macroeconomic indicators that were to be reviewed in discussing the economic policies of the major economies. Indicators had apparently been used as a reference mechanism by the G5 to review economic performance since the early 1980s; see Funabashi (1988). As a proposal, the use of indicators goes back at least to Working Party No.3 discussions in the 1960s.

3. See also the earlier OECD publication, Positive Adjustment Policies -- Managing Structural Change, Paris, 1983, which followed the adoption by the OECD Council of Ministers in 1982 of a set of broad criteria on "positive adjustment policies".

4. A parallel process has been taking place at the IMF; see IMF (1989).

5. This is discussed by Wattleworth and Woglom (1989).

6. Put another way, lump-sum transfers are devices to separate efficiency from equity arguments. The feasibility of lump-sum taxes and subsidies is, however, highly questionable because in general endowments are not redistributable without cost. Actual taxation schemes and transfer programmes are almost always related to individuals' behaviour, for instance the amount of household expenditure or labour income. It follows that redistribution creates incentives for individuals to depart from optimal choices by changing consumption patterns or increasing the amount of leisure time.

7. This section draws freely on OECD, Structural Adjustment and Economic Performance, 1987, where some of the ideas are more fully developed; the report, which was considered by EPC, also provides a detailed sector-by-sector review of structural adjustment.

8. The benefits accruing to households from the use made by governments of tax receipts is not taken into consideration here.

9. Strictly speaking lump-sum taxes may influence marginal behaviour if, for example, the possibility of emigration were taken into account. A system which provides for the deduction of economic depreciation but not of interest charges effectively taxes pure profits. Concerning corporate taxation see, for example, Stiglitz (1986), Chapter 21.

10. Formally, production efficiency requires that the MRS between any two inputs and the MRT between any two outputs be the same among all firms. Differential income tax treatment of corporate and unincorporated businesses as well as import duties and (cascade) sales taxes violate this condition.

11. For relatively small changes in tax rates, the deadweight loss (D) associated with a tax on labour income is approximately equal to (see e.g. Stiglitz, (1986):

$$D = \tfrac{1}{2}t^2 b \, \eta \, wL$$

where
- t = the rate of tax
- η = compensated elasticity of labour supply
- w = wage rate
- L = labour input

That is, the loss varies directly with the size of the elasticity and with the square of the tax rate.

12. In fact, estimates of effective tax rates suggest that this conflict may be less stark than when viewed from a partial perspective. Empirical research indicates that tax concessions, which tend to be better exploited by the well-off, severely restrict the redistributional effect of progressive income taxation.

13. For example, with respect to the taxation of labour, see the range of values for estimated labour supply elasticities presented in Tables A1 to A4 of Hagemann _et al_. However, elasticity measures are probably used as a guide to determining some excise tax rates.

14. The most important concessions were accelerated depreciation and investment tax credits. See OECD (1987b) (pp. 52-53) for a review of these developments. The accumulation of tax losses whereby existing firms face zero tax rates has discouraged potential entry by new firms and also stimulated acquisitions motivated more by fiscal considerations than by underlying economic fundamentals. See, for example, OECD (1987a), pp. 352 _et seq_. and Hagemann _et al_., pp. 72 _et seq_. concerning the impact of tax-induced distortions.

15. The average tax burden as measured by the share of tax receipts in GNP rose by 6 percentage points between 1965 and 1975 to 38 per cent. Concerning the effect of inflation on the personal tax burden see, for example, Table 5.8 of OECD (1989a). See OECD (1987b), Position Paper of Panel 5, for a resumé of the effects of inflation on the measurement of capital income.

16. See, for example, OECD (1989b) for a review of progress to date in structural adjustment.

17. Manufacturing and wholesale taxes distort the supply of, and demand for, the goods and services concerned. For a general discussion of the various types of consumption taxes (their design and economic effects) see OECD (1988a).

18. While comparisons are difficult, OECD (1988a) reports that VAT coverage is over 70 per cent of total consumption compared with 30-50 per cent for RSTs. The reason for the greater application of VAT to services is related to its more efficient system of evasion control.

19. Compare two tax systems; one applying a flat rate of 4 per cent and another having two rates of 2 and 6 per cent (i.e. an average 4 per cent). The latter system entails the greater distortions, since the deadweight cost is not only positively related to the mean tax rate but also to the variance of tax rates.

20. Taxes are defined in **Revenue Statistics of OECD Member Countries** as "compulsory, unrequited payments to general government". Compulsory social security contributions are, contrary to SNA practice, here counted as taxes even though in most countries benefits depend upon contributions made and are accordingly not strictly "unrequited". In principle, voluntary contributions are excluded, although in practice they may be difficult to distinguish. A number of fees and charges are borderline cases, but are relatively unimportant in terms of revenue involved. For a general discussion see Messere and Owens (1987).

21. As reported in OECD (1987a) (page 359) a general-equilibrium analysis of the 1973 United Kingdom reform which replaced the then existing purchase and selective employment taxes with a more neutral VAT in fact probably worsened economic performance since the SET had helped offset distortions arising from capital income taxation.

22. Tax expenditures are defined as concessions departing from the "normal" tax structure and designed to favour a particular category of taxpayer. Substantial conceptual and practical problems attach to determining what constitutes a "normal" structure. For further details on this and on methods of evaluation see OECD (1984).

23. The more elastic is demand and the more inelastic is the supply curve, the more a tax is born by producers; correspondingly, the more inelastic demand and elastic supply the more the tax is borne by consumers. Labour supply is found to be relatively elastic in the short run but inelastic in the longer run (see, for example, OECD (1989a), p. 186 concerning the reaction in Iceland to the transition to a PAYE system in 1987 and Robertson and Symons (1989) concerning the United Kingdom). It should be noted, however, that the medium-term reaction of labour force subsets may be mutually compensating.

24. The OECD Trade Directorate also monitors such measures but no data bank as such is maintained.

25. The indicators computed by Nogués et al. (1986) and Laird and Yeats (1988) registered measures on the individual Custom Co-operation Council Nomenclature tariff line. While the former used the tariff line data directly, the latter, following Walter (1972), used the "affected" commodity concept: a four-digit SITC product is considered to be affected if one or more of the component tariff lines is subject to a measure. The reasoning behind this latter procedure is that the measures are complementary across tariff lines: exporters of closely-related products are assumed to be aware of the measure and to modify their behaviour to avoid being affected. One can think of numerous examples where the reverse has been true and exporters have simply moved up-market in order to escape a barrier (this is not to deny possible welfare costs due to "excessive" product diversification).

26. More specifically:

$$ERA_j = ERP_j + (subsidy_j/(value\text{-}added\ at\ domestic\ prices_j/ERP_j))$$

This last term, the effective rate of subsidisation, requires some clarification. The assumption of fixed coefficients and perfect substitutability ensures that subsidies on gross output will not affect prices but only quantities. The recipient of the subsidy increases gross output by the full amount of the subsidy, but the value-added created in that process is distorted by tariffs, just as the initial value-added has been. Hence it must be deflated by the ERP.

27. While relatively new as an indicator, its development was essentially foreseen by Corden (1971), in his concept of "net protection".

28. For a discussion about the various methods utilised for computing welfare measures in AGE models, see Shoven and Whalley (1984).

29. For a discussion of the use of AGE models for trade analysis see Borges (1986) and Harris (1988).

30. This question has been investigated by, among others, Taylor and Black (1974), de Melo (1980), Meltzer (1980), Deardorff (1984) and Hartigan (1985).

31. "As I examine the results I am left with a feeling of scepticism regarding the usefulness of the adjusted trade intensity ratios as indicators of trade barriers ... What seems clear is that, in the absence of direct measures of barriers, it will be impossible to determine the degree of openness for most countries with much degree of confidence." (Leamer, 1988, p. 199).

32. See for example, structural chapters in OECD Country Surveys and Commission of the European Communities (1989).

33. See OECD (1989a) and OECD (1989b).

34. PSEs have been calculated by the Agriculture Directorate (see section D below) and by the International Energy Agency (see IEA, Coal Prospects and Policies in IEA countries, 1987, pp. 117-122).

35. One way of attempting to try to limit the excessive profits that may be earned in privatised corporations with monopolistic positions is some form of direct regulation of prices. The use of price ceilings appears to have advantages. One type of such ceiling is referred to by the formula (RPI-X) which allows the firm to raise prices in accordance with an inflation index such as a retail price index (RPI) reduced by an allowance for increased productivity. Such a formula might give an incentive to increase efficiency, as increases in productivity exceeding the "X" factor should contribute to profitability.

36.   An interesting overview of the impact of deregulation and related
        issues has been prepared by the Directorate for Financial, Fiscal and
        Enterprise Affairs in their background paper for the Symposium on
        Competition and Economic Development to be held at OECD in mid-October
        of this year. No specific quantitative indicators are proposed, the
        emphasis being given to case studies for deregulation in air transport,
        telecommunications and road transport (for references, see the
        background paper).

37.   <u>Main Science and Technology Indicators</u> (bi-annual) contains statistics
        about, <u>inter alia</u>, resources devoted to R&D (R search and Development
        expenditures and personnel), patenting activities and technological
        balance of payments. <u>Science and Technology -- basic statistics</u> (1989)
        also gives data for R&D expenditures by industry and government budget
        data broken down by socio-economic objectives. <u>STI Indicators
        Newsletter</u> (bi-annual) summarises recent work of the Science,
        Technology and Industrial Indicators Division of the OECD in the form
        of brief articles on statistical topics. The reports on <u>Science and
        Technology Indicators</u>, published every two years, analyse trends in the
        structure and in the level of science and technology activities in OECD
        countries. An important publication focusing on patents is the annual
        report of the World Intellectual Property Organisation in Geneva.

38.   Modelling the flow of technology from one industry to another is
        difficult. Evenson and Putman (1988) constructed a matrix relating
        innovations by industry from Canadian patents data which classifies
        each patent according to industry of origin and industry of use. This
        matrix was applied to other countries by Englander <u>et al</u>. (1988)
        assuming that technology in use across most OECD countries is likely to
        be broadly similar. However, since the structure of each specific
        industry varies between countries, subsectors might have equal
        -- unknown -- R&D intensities but the weight these subsectors have in a
        specific industry determines also the R&D intensity of that industry.
        It would thus seem advisable to use this matrix only for countries
        which have a similar industry structure as Canada. Additional
        information about the flow of technology is available in input/output
        tables and the associated capital goods commodity flows sub-matrix.

39.   Indicators of this sort were presented at Working Party No.9, Workshop
        on "Indicators of Technology, Industrial Competitiveness and Structural
        Change", in Room Document No.4, 19th June 1989.

40.   Data to calculate such indicators are available in OECD <u>National
        Accounts</u> and <u>Industrial Structure Statistics</u>.

41.   Using national accounts value-added data, which net out inter-industry
        deliveries, might lead to different conclusions about structural
        changes from those based on production statistics. For example, the
        falling share of manufacturing in most countries would look greater
        since manufacturing enterprises have withdrawn from various service
        activities such as transport with the manufacturing sector having
        increased its purchases from service industries (see Blades, 1988).

42. The theoretical considerations lying behind the Salter curve concern the technical advances and changing relative prices of production factors. These result in a continuous stream of new best-practice techniques of production which provide the potential for increased productivity. Observed levels of productivity depend upon the extent to which this flow of new techniques is actually incorporated in firms. A wide variation in efficiency is observed between plants in the same industry (Salter, 1966, Chapter 4). This divergence lies in the failure of many plants to adopt these new methods as soon as they come available. Delays in adoption of new techniques are related to uncertainty and lack of information about new technology and of the proprietary nature of new technologies (see Soete and Turner, 1984).

43. Lindbeck (1988) and Statens Industriverk (August, 1988).

44. Similar measures of comparative performance have been proposed in a number of areas, most notably for the assessment of comparative trade advantage, see, for example, Balassa (1967) and Bowen (1983). See also Section III.B on Trade.

45. Specific details on the grouping of individual industries are given in Table A.1 of Annex A in Meyer-zu-Schlochtern (1988).

46. The 1982 Ministerial Mandate led to the 1987 OECD Report on National Policies and Agricultural Trade (OECD, 1987c) and an ensuing set of country reports (under the same title). The 1987 Ministerial Communiqué then asked the OECD to follow up this work with a monitoring exercise which has now resulted in two annual reports on Agricultural Policies, Markets and Trade: Monitoring and Outlook in 1988 and 1989. The Organisation was asked to "update and improve its analytical tools" (1987 Communiqué) with the work then to "...include improving quantitative indicators (e.g. PSE/CSE) and analysis" (1989 Communiqué).

47. PSEs have been calculated for coal: see Appendix D in IEA (1987).

48. This section draws heavily on material presented in OECD (1987), OECD (1989) and C. Cahill et al. (1989). The method of measuring assistance using PSEs and CSEs was initially undertaken by Professor Tim Josling for the Food and Agricultural Organisation, although the theoretical basis may be found in the work of Professor Max Corden. See FAO, Agricultural Protection: Domestic Policy and International Trade (C73/LIM/9), 1973: and Agricultural Protection and Stabilization Policies: A Framework of Measurement in the context of Agricultural Adjustment (C75/LIM/2), 1975.

49. Although it would be preferable for the denominator of the percentage PSE and CSE to include all budget payments (i.e. respectively B and G), as with the numerator, this has not been agreed to by the relevant Committee; it is therefore possible in extreme cases to have a PSE which exceeds 100 per cent.

50. See Annex II, Assistance to Agriculture in OECD, in OECD (1989j).

51. See Huff et al. (1989), Lienert (1989) and Martin (1989), as well as other articles in the forthcoming Winter 1989 issue of OECD Economic Studies.

52. This section draws directly on the chapter on "The labour market and industrial relations", in Structural Adjustment and Economic Performance, OECD (1987).

53. The short-run real wage rigidity is measured by the ratio of the elasticity of nominal wage changes with respect to consumer price inflation to the elasticity with respect to the rate of unemployment.

54. As measured by outlays on active labour market programmes, defined by employment services and administration, training, special youth measures, direct job creation, employment subsidies and measures for the disabled.

55. See Feldstein and Horioka (1982) and Dean et al. (1989b).

56. A useful example of these sorts of indicators can be found in Fukao and Hanazaki (1987).

57. See OECD, Economic Outlook 45, (June, 1989).

58. See for example Lichtenberg and Siegel (1987).

59. Such measures are commonly used as indicators of interest margins with the OECD and private financial institutions.

60. For example, Beaston, Hanweck and Humphrey (1982).

61. The question of measuring financial services output is to be the subject of further analysis within the work programme.

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