Jan-Erik Stostad:

REDUCING THE COMMUNICATION GAP BETWEEN ECONOMISTS AND POLICY MAKERS: A SET OF STRUCTURAL POLICY INDICATORS

Abstract

Economists have come to view indicators like the budget deficit and the inflation rate as necessary tools when discussing stabilization policy. In dealing with structural policy, however, indicators have a clearly less prominent role. The paper argues that constructing a standardized set of structural indicators for the Norwegian economy, based on economic theory, is likely to strengthen structural policy surveillance and improve the quality of public debate on efficiency and growth issues. A simple "Market Failure Approach" is presented to help identify interesting indicators.

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I drafted this paper while I was visiting scholar at the Center for Economic Policy Research (CEPR) at Stanford University. I am grateful to professor Taylor and his staff for making the visit possible and inviting me to the many stimulating conferences and seminars at CEPR during my stay.
1. Introduction

Structural reforms have flourished in the industrialized countries the last 10-20 years. Domestic credit markets have been deregulated and exchange controls abolished. Measures to increase competition have been introduced in many product markets. Important parts of the public sector have been reformed or privatized. Most countries have implemented far reaching tax reforms.

The increased importance of structural reform has been reflected in main economic policy documents as the OECD Economic Outlook or the Economic Report of the President in the United States, as well as in the Norwegian “National Budget”. Further reforms are high on the political agenda in almost all countries.

Gradually the work with different structural reforms, especially in policy making circles trying to keep an economy-wide perspective, has come to be viewed as an economic policy area in its own right, most often labeled “structural policy”. In presentations of economic policy one often sees structural policy complementing stabilization policy.

The main objective of structural policy is to raise potential gross domestic product (GDP) - encouraging economic growth - in the economy by organizing it to perform as efficiently as possible. The instruments of structural policy, accordingly, are “micro” public policy instruments which have (non-trivial) effects on potential GDP. For instance, the tax rate structure may be viewed as an important structural policy instrument².

Formulating and implementing optimal structural policy is, however, a very demanding task facing policy makers and their advisors. The number and diversity of markets or sectors involved is considerable. This makes it hard to get a good overview and to choose the right areas for closer scrutiny. The media or interest groups, although in many instances helpful in identifying structural policy problems, can not, at least not in the case of Norway, be trusted to consistently provide reliable signposts for structural policy.

The many structural initiatives undertaken in Norway the last 15 years include reforms in the credit market, the tax system, and - pioneering in an international perspective - the market for electric power. An example of an “ignored” subject, however, due to less than optimal structural surveillance, is the inefficiencies in the Norwegian food processing industry. This industry has been sheltered from foreign competition. It was, however, not until 1993 that a research project on Effective Rate of Assistance at Statistics Norway (see Holmøy et al 1993) showed that the shelter could be compared to a budget support of as much as about 1% of GDP, which is of the magnitude of $50,000 per worker. Had the size of this support been identified earlier, it would have influenced the structural policy review in the “National Budget”, and - possibly - the Government’s policy toward this industry.

² The policy area “structural policy” thus links together different “structural” (or “micro-economic” or “sector”) policies as diversified as labor-market policy, agricultural policy, education policy etc. Structural policy, then, has both a disaggregate and an aggregate ingredient; structural reforms are usually implemented at a sector or market level, but the final objective is economy-wide. This is also reflected in the need to use both micro and macro economic theory when evaluating structural policy.
Acknowledging the increased importance attached to structural policy, and the complexity of this policy area, this paper discusses whether a set of structural policy indicators based on economic theory should be constructed covering the Norwegian economy. This question is presently being considered in the Norwegian Ministry of Finance.

The scope of the paper is modest in the sense that it identifies and deals with some main issues. Section 2 gives an overview of earlier work. Section 3 provides a definition of “structural policy indicator”. Section 4 gives advice as to what a set of structural policy indicators should look like, outlines a simple tool based on economic theory to help finding interesting indicators, and presents an example of empirical indicator work in Norway. Section 5 offers a discussion of the main question noted above. Finally, Section 6 sums up the conclusions.

It should be added that the author headed the Structural Policy Section in the Economic Policy Department in the Norwegian Ministry of Finance in the years from 1991 to 1995. The ideas in this paper is based on the experience from that period, and the paper thus written from the perspective of a government advisor.

2. Earlier work

Using indicators is of course nothing new in structural policy making. However, around 1990, following the increased focus on structural policy during the 1980’s, two papers were published looking more systematically into the use of indicators for structural policy support.

The purpose of Wattleworth and Woglom (1989) was to examine whether, and how, IMF’s existing macroeconomic indicator system in the context of the World Economic Outlook might be expanded to include structural policies and performance. The article stresses that attempting to define the precise quantitative impact on macroeconomic targets of specific structural measures is difficult. These difficulties are of two main types: the long and uncertain time lags involved, and unavailability of much of the necessary data. Together these two points imply that generating and interpreting many structural policy indicators represents a substantial and ongoing research project. Despite this the article concludes that “a preliminary effort to identify useful structural indicators has met with some success (…)”.

OECD (1990) gives an analytical background taking a simple welfare-theoretical approach, before investigating different indicators in the six areas taxation, trade, industry, agriculture, labor markets and financial markets. The paper doubts if it is possible to establish an internationally comparable structural policy indicator set covering the whole economy, but favors work on structural indicators in certain areas that can give clear messages about policy, and preferably, be comparable across countries.

Not much work was done on structural indicators with a general and top-down perspective at the OECD the next five years. OECD (1996), however, presented a collection of indicators in 11 areas\(^3\), across countries and with time-series where available. It was “designed to serve as a

\(^3\) These areas are: General indicators, labor market indicators, financial institutions and markets, international product and factor flows, structure of production, regulation and competition, public finance and expenditure, social service, agriculture, energy and environment.

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reference book” and “...responds to requests from OECD committees and others” for data that illustrate the structure and performance of member countries’ economies. Most data had been published earlier in other OECD publications. Each indicator was accompanied by a short comment to help readers focus on the main developments and in some instances pointing out methodological difficulties.

Although documenting interest in establishing good structural policy indicators, the work at the IMF and the OECD has so far been rather preliminary and stock taking in nature rather than a broad and systematic effort. Problems with data availability and country comparisons in different institutional settings have hampered progress toward an internationally standardized set of structural policy indicators.

During the last few years interest has emerged in nationally produced sets of structural policy indicators. An example is Danish Government (1997), which, however, has a broader focus than efficiency and growth, including indicators of macroeconomic conditions, income distribution and the environment. A wide variety of indicators is presented, using many different theoretical approaches.

Somewhat in contrast, work so far in Norway has investigated the possibilities of taking a more focused and theoretically coherent approach. The project estimating Effective Rates of Assistance (ERA) has already been mentioned, covering budget and non-budget government support to industries. Still more ambitious, the Research Department in Statistics Norway is currently undertaking a research project on structural policy indicators (Holmoy 1996, draft). The project is initiated and co-financed by the Norwegian Ministry of Finance. The aim of the project is to make a suggestion on a theoretical framework for a set of structural policy indicators and to present specific indicators for at least two pilot areas. The report is planned to be finalized in the summer of 1998.

Holmoy (1996) argues that a set of structural indicators should have a common theoretical framework, and suggests that this framework should be based on a “welfare accounting” approach. With reference to Weitzman (1976) a special form of real disposable net national income is proposed as an aggregate indicator of welfare. This indicator is then decomposed from the supply side of the economy to determine which factors contribute to welfare. The approach represents an extension of traditional growth accounting, building on Solow’s work in the 50’s, see for instance Jorgenson, Gollop and Fraumeni (1987).

The following main components of the welfare indicator for a period emerge from this approach:

A. The returns from initial wealth
B. Gains (or losses) from several forms of reallocations:
   * of time from leisure to work
   * from reduced unemployment
   * of labor between industries with different marginal productivities
   * between use of products as inputs and as consumption goods
   * between use of products as exports and domestic consumption
   * between different uses of capital goods
   * between consumption and investments

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* between domestic investment and financial investments abroad.

Building on a basically neoclassical approach, price wedges come out as important indicators in this scheme. Holmoy shows how growth in total factor productivity (TFP) for each sector and for the economy as a whole can be distinguished from gains from reallocations within this framework.

It seems important to have a rather precise idea of what a "structural policy indicator" should indicate before constructing a set of such indicators in practice. This is, however, and perhaps somewhat surprisingly, not treated in depth in the international work referred to above. The next section is an attempt to throw some light on this issue.

3. The concept “structural policy indicator”

The concept “structural policy indicator” - or “structural indicator” for short - can have different interpretations. For the current purpose, stated more clearly in Section 4 below, it seems convenient to define “structural policy indicator” as

"information on variables and links between variables which, according to economic theory, may be important in the causal chain from structural policy instruments via sector-market effects to potential Gross Domestic Product (GDP) or the output gap”.

The output gap is, as usual, defined as the difference between potential and actual GDP. Intuitively, structural indicators may be thought of as policy oriented indicators of efficiency and growth in the economy.

Linking the definition to both potential GDP and the output gap reflects the two main objectives of structural policy. Potential GDP has traditionally been regarded as - and still is - the most important objective of structural policy in Norway (see for instance the Norwegian Long Term Program 1994-97, page 113). In later years the effect of structural policy on the stabilizing abilities of the economy has been more emphasized⁴. The reference to the output gap in the definition is meant to imply that indicators of the economy’s flexibility or robustness to shocks, and of structural measures with effects on this, are also relevant. In practice, however, the work to identify good indicators in this area is still in its infancy.

The concept “structural policy instrument” is - as indicated in Section 1 - used here in a broad way, encompassing public policy instruments with non-trivial effects on efficiency and hence growth, but less typical macroeconomic policy instruments as the level of government expenditures. This includes both “pure” structural policy instruments - instruments used with the stated objective to enhance efficiency of the economy - and instruments where efficiency is influenced as a side-effect (for instance while pursuing distributional goals).

Some additional comments to the definition above are:

⁴ See for instance the Norwegian National Budget for 1997, page 150, or, for the U.S., the Economic Report of the President 1996, page 43.
* Structural reforms will generally have effects on other policy objectives than potential GDP as well, for instance on the income distribution and the environment. The analyses of these effects are essential when doing in-depth analyses of specific reforms. However, the purpose here, the need to focus the indicators, and practical considerations imply that structural policy indicators do not try to capture such additional effects. Statistics Norway already publishes an overview of living conditions including assessments of the income distribution. An environmental indicator set has also been developed and is now being published regularly. Hence, the structural policy indicator set can be seen as supplementing the indicator sets in the macro, distributational and environmental areas in Norway.

* The definition focuses on potential GDP and the output gap rather than the productivity in the economy (for instance measured by Total Factor Productivity). This is not to exclude productivity measures, which are essential structural indicators, but to allow for indicators concerning the magnitude of primary factor use and how this may be influenced by structural policy decisions.

* The definition implies that we are interested in both aggregate effects, for instance the effect on potential GDP, and performance at the sector or market level.

Related to the issue of definition is the question of how to classify the indicators into groups. Figure 1 presents a possible classification, drawing on the earlier work.

A further distinction has often been made between so-called performance, intermediate and policy indicators. Performance indicators are indicators in the “objective hierarchy” of structural policy, including statistics of the performance of individual markets (for instance indicators of price and productivity development in the telecommunication sector). The links from policy decisions to performance can often be indicated to some extent by interesting intermediate variables. This gives rise to the intermediate indicator category, which include indicators of possible market failures (for instance of market shares).

Policy indicators give information on policy decisions (although may not necessarily be the decision-variable itself).

The three examples of indicators in each eclipse in Figure 1 are performance indicators, intermediate indicators and policy indicators respectively. Annex 1 provides more examples of specific indicators. In addition indicators covering health, safety and environment regulation is of increasing interest5.

It is especially difficult to design good indicators for the public sector. Much work is, however, going on in Norway (and elsewhere) to better assess performance in the different parts of this sector. The importance of the public sector in the Norwegian economy makes it necessary to include it in an indicator set.

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5 Over the last two decades the importance of these regulations has probably increased markedly in Norway compared to the importance of economic regulation. See Viscusi (1994) for some examples of indicators in the health, safety and environmental regulation area.
Figure 1 Classification of structural policy indicators and examples

- Aggregate or cross-sector indicators
  - Total Factor Productivity
  - Effective Rates of Assistance
  - Structure of tax rates
  - Labor market indicators
    - Structural unemployment rate
    - Number of workers on minimum wage
    - Minimum wage rate
  - Financial market indicators
    - Interest margins
    - Interest differentials between domestic and foreign markets
    - Share of public ownership in financial institutions
  - Product market indicators
    - Textiles
    - Fisheries
  - Public sector indicators
    - Health
    - Education
  - Productivity
  - Market concentration index
  - Quantitative restrictions
  - Number of Ph.D.s
  - Number of students in universities
  - Educational expenditure by type of institution
4. Important properties of a structural policy indicator set

4.1 The purpose of the indicator set

The ultimate purpose of establishing a structural policy indicator set should be to improve structural policy decisions. However, the way to achieve this is an indirect one. The operational objective of a structural policy indicator set should be

* to focus and stimulate discussion of structural policy, both inside and outside the Government
* to help structural policy surveillance, that is to make it easier to identify which policy areas and types of measures to focus attention on in structural policy making.

Due to the complex nature of structural policy, the indicator set should not be used as a substitute for in-depth analyses of specific reforms or issues, but rather as signposts for structural surveillance or as part of broader analyses and presentations.

4.2 Target group

The target group should cover all interested in structural policy making. This means the set should be designed to be used by policy makers, their advisors, the media and the general public. The experts in a specific structural policy field should not, however, be part of the main target group, since this would imply a too vast number of indicators (which is not to exclude the possibility that the indicator-set may give new insights for experts in some areas as well).

4.3 Theoretical framework

Every indicator should as a ground rule have a sound theoretical and empirical foundation, ensuring the quality of the indicator set. Moreover, this foundation should be transparent and accessible for interested parties. This will make it easier for users to evaluate the relevance of the indicators and stimulate subsequent improvement of the indicator set.

It will be too restrictive to presuppose that all the indicators in the set must be based solely upon one (part of) economic theory. Both the lack of a commonly accepted complete economic theory and the normative aspects of economic theory are reasons for this. However, it may be helpful to have an explicit core theoretical framework for the set. This may make it easier to select appropriate indicators, and make the set more focused, coherent and accessible, thus hopefully avoiding some of the ad-hoc nature of earlier work.

Given the current “state of the art” in economic theory, the efficiency/growth-perspective, and that an indicator set should in principle cover the whole economy, the neoclassical approach seems - with its well-known shortcomings - the most realistic choice as a “core” theory. More or less implicitly this has been used as the general approach in earlier work.

The specific approach chosen by Holmoy (1996) seems suitable as a “core” framework at the operational level in a Norwegian setting. As mentioned above this can be viewed as an extension of the traditional growth accounting approach, which is both well known and
recognized as a part of mainstream economic theory. This also implies that its limitations are reasonably well understood. The data situation and experience with disaggregate macroeconomic models in Norway support this choice.

However, a number of indicators which seem difficult to dismiss as interesting will not fit naturally into an indicator set using neoclassical theory as its only approach. Some examples used in earlier work are NAIRU, real wage gap, real/nominal wage rigidity, wage bargaining structure, Tobin's q and outlays to R&D programs. Hence, for the set to be relevant there is a need for supplemental indicators using other parts of economic theory as rationale. Endogenous growth theory (Romer 1990) will be of interest here, giving reason to include indicators of R&D. Another example is supplemental indicators covering institutional aspects of the economy (North 1990).

Supplemental indicators must of course have their own theoretical justification spelled out, and the supposed link to the core theory should be stated (this ought to be possible, since the accounting framework is complete).

Two relevant questions may be asked at this point:

1. Will not a full articulated model relating performance to policy be necessary to evaluate policy?

This question has been quite extensively discussed in OECD (1990) and Holmoy (1996). The consensus seems to be that, although simple indicators have obvious limitations, they can, used with care, be useful as signposts as part of structural policy surveillance. For in-depth analyses indicators are seldom or ever sufficient input, and a model-approach, either partial or general equilibrium, is often necessary.

2. But, just to select and interpret indicators, though only as signposts, will it not be necessary to have a full articulated model?

The basic problem is that we do not have at our disposal a one agreed-upon economy-wide model explaining potential GDP. One problem in practice is that no explicit model incorporates all instruments structural policy makers or economists find interesting; it is not complex or disaggregate enough. Another problem, philosophically more important but perhaps less troubling in practice, is, of course, that economists differ on what model describes the economy best.

A more pragmatic answer is that statistics are used anyway in structural surveillance, and that it is scope for using economic theory in a more systematic way than today when producing and presenting these statistics.

4.4 A simple framework to support the process of identifying interesting indicators

The researchers creating a structural indicator set will possess a vast amount of a priori information about the functioning of the economy. This paragraph presents a framework for identifying interesting structural policy indicators from the "sea of statistics", utilizing this asset. Well-known theory of the economics of the public sector is used as a starting point. The
purpose is, of course, to give some support to the practical process of finding good indicators. The framework may be labelled the “Market Failure Approach” to indicate the link to economic theory of market failures\(^6\).

According to economic theory, government intervention in specific economic activities may be called for in a number of instances to improve Pareto efficiency, Stiglitz (1988) listing lack of competition, public goods, externalities, information failures and incomplete markets.

The basic idea behind the approach is, simply enough, that search for good indicators should concentrate on markets/activities where there are perceived major government failures to reach Pareto efficiency, that is when the researchers believe that

* the government does not intervene to correct a perceived major market failure
* the government does intervene to correct a major market failure, but does this incorrectly, that is in a way that leaves major inefficiency
* there are no perceived major market failures in a particular market/sector, but the government is taking major (distortionary) action anyway.

**Figure 2.** where the “Government failure”-boxes correspond to these three instances, illustrates the approach, adding at the bottom what kind of indicators which may be most promising to look for.

It should be noted in addition that indicators dealing with the reason for government failure may be relevant in all the three instances. Voting paradoxes, interest group behavior/rent seeking, time inconsistency (commitment) problems and problems of motivating civil servants are important such reasons (Taylor 1995). These are important topics, but where the search for good indicators has far to go.

A few remarks should be made to this approach:

* The criterion for whether an activity is subject to “Government failure” or not is whether the objective of Pareto-efficiency is reached. Of course, the government very frequently has other objectives guiding the use of instruments, leading to - maybe necessary - inefficiencies as an unwanted side-effect. The “Government failure” label is thus to be interpreted in a narrow sense as failure to achieve Pareto-optimum.
* The approach is partial. It does not automatically take into account the interaction between markets. Such interaction has to be considered by the researchers who do the exercise. Theoretically this, of course, is a major issue in welfare economics (theory of the second best); in practice it has to be dealt with here on an activity to activity basis (see also OECD 1990 on this subject).
* Some instruments may cover many or nearly all activities, for instance the tax system and labor legislation. In general such instruments should be covered by policy indicators, and activities only subject to these be placed in the “No instrument”-category.
* The approach does not apply to the most aggregate structural indicators.
* The approach is, however, not restricted to activities in the private sector.

\(^6\) Some might have preferred to call it a “Government Failure Approach”, reflecting the focus on sectors most likely to need policy reform.
Figure 2 The "Market Failure Approach"

Activity "left to itself" (hypothetically)

Reason for government intervention
- Instruments used
  - Correctly
    - "No perceived government failure"
  - Incorrectly
    - "Government failure"
- No instruments
- "Government failure"
- "Government failure"
- "No perceived government failure"

Look for indicators of market failure, policy stance and perceived adverse effects

Look for indicators capturing policy stance and possible effects
If successful, the approach leads the researchers to the most promising activities and indicate what kind of indicators to look for. This will limit and focus the indicator set. In addition it provides a simple and general framework, based on relevant economic theory, to help understanding the nature of structural policy indicators.

4.5 Empirical work in Norway

The construction of Effective Rates of Assistance (ERA), already mentioned in the introduction, is an example of recent work in Norway pointing toward a standardized indicator set and using neoclassical theory as a core framework. Table 1 shows estimates of total ERAs in the right hand column, defined as direct plus indirect net subsidies, including nontariff barriers, as a percentage of factor income, for 17 industries. This is decomposed (in a nontrivial way) into the different reasons for the “effective” government support; net sector budget subsidies, trade policies and regulated electricity prices. Subsidies to one sector will be spread to other sectors via the input-output mechanism for intermediate products not subject to free trade.

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7 For a survey of empirical work on nontariff barriers, including the Norwegian ERA-exercise and estimates for the U.S. by USITC, see Deardorff and Stern: Measurement of nontariff barriers (University of Michigan 1997). ERA is developed from the Effective Rates of Protection concept, see Corden (1966). ERAs has been estimated for the Australian economy as well.
Table 1 Effective Rates of Assistance (ERAs) in Norway of Different Policy Measures. Pct. of factor income. 1994.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Net Sector Subsidies</th>
<th>Trade Policies</th>
<th>Regulated Electricity Prices</th>
<th>Total ERA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>56,3</td>
<td>40,6</td>
<td>-0,3</td>
<td>96,6</td>
</tr>
<tr>
<td>Food Processing - meat and diary prod.</td>
<td>5,1</td>
<td>49,5</td>
<td>-0,3</td>
<td>54,2</td>
</tr>
<tr>
<td>Manufacture of other consumer goods**</td>
<td>-2,5</td>
<td>49,8</td>
<td>-0,5</td>
<td>46,8</td>
</tr>
<tr>
<td>Building of ships etc.</td>
<td>25,8</td>
<td>-0,6</td>
<td>-0,3</td>
<td>24,9</td>
</tr>
<tr>
<td>Production of metals</td>
<td>-1,4</td>
<td>-0,8</td>
<td>20,7</td>
<td>18,6</td>
</tr>
<tr>
<td>Manufacture of pulp and paper articles</td>
<td>-1,4</td>
<td>-0,7</td>
<td>9,4</td>
<td>7,2</td>
</tr>
<tr>
<td>Forestry</td>
<td>7,5</td>
<td>-1,2</td>
<td>-0,0</td>
<td>6,3</td>
</tr>
<tr>
<td>Fishing</td>
<td>5,6</td>
<td>-0,7</td>
<td>-0,0</td>
<td>4,9</td>
</tr>
<tr>
<td>Food Processing - fish</td>
<td>4,1</td>
<td>0,6</td>
<td>-0,7</td>
<td>4,0</td>
</tr>
<tr>
<td>Manufacture of chemical products etc.</td>
<td>2,1</td>
<td>2,3</td>
<td>-0,6</td>
<td>3,8</td>
</tr>
<tr>
<td>Manufacture of textiles etc.</td>
<td>0,2</td>
<td>2,4</td>
<td>-0,3</td>
<td>2,3</td>
</tr>
<tr>
<td>Printing and publishing</td>
<td>2,8</td>
<td>-0,4</td>
<td>-0,2</td>
<td>2,2</td>
</tr>
<tr>
<td>Manufacture of industrial chemicals</td>
<td>-1,3</td>
<td>-0,8</td>
<td>3,8</td>
<td>1,8</td>
</tr>
<tr>
<td>Manufacture of metal products etc.</td>
<td>0,2</td>
<td>0,0</td>
<td>-0,3</td>
<td>-0,1</td>
</tr>
<tr>
<td>Manufacture of oil production platforms</td>
<td>-0,3</td>
<td>-0,5</td>
<td>-0,1</td>
<td>-0,9</td>
</tr>
<tr>
<td>Manufacture of wood and wood products</td>
<td>0,2</td>
<td>-0,6</td>
<td>-0,6</td>
<td>-0,9</td>
</tr>
<tr>
<td>Petroleum refining</td>
<td>-4,8</td>
<td>1,5</td>
<td>-1,7</td>
<td>-5,0</td>
</tr>
<tr>
<td>Breeding of fish***</td>
<td>0,2</td>
<td>-39,6</td>
<td>-0,3</td>
<td>-39,7</td>
</tr>
</tbody>
</table>

*Although the Norwegian market for electric power has been deregulated, cheap power is still granted a few industries.

**Beverages and tobacco, as well as food processing of fruit and vegetables etc.

***The high negative ERA for breeding of fish following from the ERA-model has been looked more closely into. This revealed that the effect in the model was caused by higher prices than world market prices on inputs because of the trade protection of the agricultural sector. On closer scrutiny, however, it was discovered that this was a misleading aggregation effect in the model, leaving the adjusted estimated ERA for breeding of fish close to zero. The experience illustrates the detailed work necessary to get good structural indicators on complex matters.

Source: Faehn and Haegeland (1996)

The ERAs, which are to be produced every second year, give a unique overview of the Norwegian support system. They certainly help identifying industries with large direct or indirect subsidies, irrespective of the kind of subsidy. They also show that some industries are in fact harmed by the support system (negative ERAs). Furthermore they highlight the complexity of the support system and how interactions between different support schemes and between industries make it very difficult to assess their effect even on the level of support to the targeted industry (not to mention the effect on production and employment).

The ERA numbers themselves do, of course, not tell us whether these subsidies are warranted or not from a Pareto efficiency point of view. Some of the subsidy schemes giving the ERAs in the table are clearly (correct or incorrect) responses to perceived market failures. This
illustrates that structural indicators, as statistics in general, must be used with caution (see also note *** to the table). As standalone statistics they are mainly signposts, indicating a need for closer scrutiny. To judge whether a certain price wedge, which the ERAs are examples of, should be reduced through government action, one has to bring in further analyses. The economic theory of the public sector mentioned above is a useful starting point here as well.

4.6 International comparability and the role of international organizations

International comparability is often necessary to make a structural policy indicator useful. The specific choice of indicators for a structural indicator set should take this into account. Cooperation with other countries and international organizations should be sought when constructing and presenting the set.

It should be kept in mind, though, that it generally is hard to make good international comparisons. One problem is that the definitions and data collecting and processing are often not sufficiently similar. In addition there will always be differences in the "true economic model" between countries which must be considered when comparing indicators (for instance different institutions in the labor market). Hence it would be a mistake to limit the domestic indicator set to statistics which are fully comparable internationally.

Further work at OECD on structural indicators should be encouraged. Although it is too ambitious to strive for an internationally comparable "perfect" indicator set, a systematic top-down approach to structural indicators with an international perspective is fruitful. Both methodological and empirical work is likely to support individual countries trying to strengthen their structural policy surveillance. That some countries may want or have to file NA for some indicators should not prevent this work from being pursued.

5. Discussion

This section addresses whether there should be established a set of structural policy indicators for the Norwegian economy. This issue will also be commented briefly regarding other countries.

The relevant costs and benefits will, of course, depend on what kind of structural indicator set is implemented. As evident from the previous sections, it is not possible at this point to give a precise picture of an "optimal" set. Instead the definition in Section 3 and the discussion in Section 4 will have to suffice as an, admittedly rough, sketch of the kind of structural indicator set under consideration.

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8 The reason that OECDs Producer Subsidy Equivalent (PSE)-estimates for agriculture have had impact in Norway is probably not so much the level of support they showed, as the fact that Norway was right at the top of the OECD-countries in support per man year.

9 According to Michael Wattleworth, IMF has not done substantial work on structural indicators for industrialized countries after the 1989-exercise, leaving this task to OECD (Source: Conversation January 1997).
The most important costs of implementing such a set - seen from the point of view of the society as a whole - will be the R&D costs, that is economists and statisticians figuring out what kind of indicators should be included in the set. The magnitude of these costs are difficult to assess. On the one hand the constructing of a high-quality, comprehensive set as outlined above is undeniably quite ambitious. It will need a major investment effort initially and - though to a clearly lesser extent - during revisions. On the other hand, it will limit the costs that the indicator set should, at least initially, be based on already existing raw data. As indicated above the Research Department in Statistics Norway is, furthermore, very well equipped to take on such a task being situated close to the raw data and having broad experience in using disaggregate models. In addition some of the research necessary for this project can draw on research scheduled anyway, reducing effective cost. All in all, the investment costs will probably be manageable\textsuperscript{10}.

The benefits of a structural indicator set depend on:

* To what extent will the existence of an indicator set in fact lead to a better quality of the public debate and improved structural policy surveillance?
* What is the potential for a better structural policy, as a result of such an enhanced public debate and structural policy surveillance?

The answers to these questions are, self-evidently, very subjective. Assuming a good indicator set is produced and presented, it can however be argued that the benefits may be quite large in a Norwegian context. There are undoubtedly better ways to organize parts of the Norwegian economy. In addition technological change and internationalization will surely change the optimal organization as time evolves. This will give rise to new policy challenges. Increased well-founded and targeted information aimed at the public and the decision makers should be a cost-effective way of meeting these challenges.

The two specific difficulties pointed out by Wattleworth and Woglom (1989) - the long and uncertain time lags and the unavailability of much of the necessary data - will limit the usefulness of an indicator set, although somewhat less in a national than an international setting. At the same time work to deal with them may yield new insights. One important benefit of an indicator exercise will be to spell out data gaps for policy surveillance purposes\textsuperscript{11}.

In sum this paper favors implementation of a structural policy indicator set for the Norwegian economy. The costs will probably not be very high, and the upside potential may be quite substantial. Work should progress along the lines pursued so far, taking the view that a structural indicator set of lasting importance demands a theoretical framework as coherent as possible. An exercise such as Danish Government (1997) may, if so desired, complement this approach.

\textsuperscript{10} A more concrete cost analysis is possible to undertake, but is not presented here.

\textsuperscript{11} For the Norwegian economy Holmøy (1996) estimates that only 25 pct. of the employment is in industries where there is sufficient information to calculate productivity in a fairly reliable way. For the U.S. Griliches (1994) found that the share of GDP which can be attributed to 'measurable sectors' was only 30,9 pct. in 1990.
Should other industrial countries establish structural indicator sets as well? This is not the occasion to try to answer this in a country-specific way, but in general the arguments pro et con set forth for Norway will hold for most other industrial countries. In addition to Denmark, interesting work is already going on in the Netherlands, Finland and United Kingdom. Probably in all countries, independent of size, most economists would agree that there is a need to "bridge the communication gap" between economists on one side, and politicians, the media and the public on the other. There is also often a lesser known, but nonetheless important communication gap between economists with expertise in a particular field and economists with a more general background (who may often be the ones to inform policy makers).

6. Conclusions

The main conclusions of this paper can be summarized as follows:

1. A standardized structural policy indicator set should be constructed for the Norwegian economy to strengthen structural policy making. The purpose of such a set will be to support structural surveillance and to focus and enhance public debate on efficiency and growth issues. The target user groups should be the general public, the media, the administration and politicians.

2. Compared to empirical work on structural indicator sets for instance at the OECD or in Denmark, the set should focus more narrowly on Pareto efficiency and, if possible, have a more coherent theoretical framework. This may be achieved by using neoclassical theory/growth accounting as a core theory, supplementing this with indicators from other approaches. The search for good indicators should concentrate on activities or markets with perceived major "government failure" (see Section 4.4).

3. Statistics Norway should produce the set, taking due account of the possibilities of international comparisons when selecting indicators. The set may conveniently be presented annually, perhaps accompanied by in-depth analyses of selected themes. It should in addition be kept updated on the Internet.

4. Creating a structural policy indicator set may be worth considering in other countries as well. International organizations have a useful role to play in providing expertise, a meeting-place for national experts and in organizing manuals for indicator production. Perhaps the time is ripe for a more comprehensive top-down analysis of structural policy indicators in the spirit of OECD (1990).

A successful structural policy indicator set will be a noticeable step toward making structural policy more systematic and transparent. The complexity of this policy area, which in itself increases the possibility of inefficiencies and information rents, suggests that this over time will contribute to better structural policy decisions in practice.

See Blendon et al (1997) for interesting quantitative analysis of what may be a communication gap between economists and the general public in the U.S. (showing that the general public holds a far more pessimistic view on the development of the U.S. economy over the last years than economists do).
References

Blendon, R.B., Benson, J.M., Brodie, M., Morin, R., Altman, D.E., Gitterman, D., Brossard, M., and James, M. Bridging the Gap Between the Public's and Economists' Views of the Economy. Journal of Economic Perspectives Summer 1997


Danish Government. A Structural Monitoring System for Denmark (Copenhagen 1997)


Holmøy, E. Beregnng av strukturindikatorer - teoretisk rammeverk og begrepssavklaring (Oslo 1996 (Preliminary draft))


North, D.C. Institutions, Institutional Change and Economic Performance (Cambridge UK 1990)


OECD. OECD Economics at a Glance - Structural Indicators (Paris 1996)


Stiglitz, J.E. Economics of the Public Sector (Norton 1988)

Taylor, J.B. Economics (Houghton Mifflin Company 1995)


ANNEX 1


This annex gives an overview of the structural policy indicators reviewed in the abovementioned articles. Policy indicators, in contrast to performance or intermediate indicators, are marked with (PO).

1. Aggregate indicators

* Potential Output Growth (POG)
* Disaggregating POG into factor inputs and total factor productivity (TFP)
* Rate of investment

2. Labor markets

* Real wage gap
* NAIRU
* Unemployment insurance replacement ratios (PO)
* Taxes on labor income (PO)
* Minimum wages (PO)
* Real wage rigidity (estimates based on wage equations)
* Nominal wage rigidity (estimates based on wage equations)

* Real wage gap
* NAIRU
* Unemployment insurance (PO)
* Minimum wages
* Real wage rigidity
* Long duration unem.
* Youth unem.
* Vacancy rate comp. with unem. rate
* Part-time comp. to total empl.
* Wage bargaining structure
* Trade union membership
* Dispersion of regional unem. rates
* Hiring and lay-off restrictions.
* Expenditures on unem. insurance and active labour market programs/GDP
3. Capital and Financial Markets

Wattleworth-Woglom
* Nominal and real interest rate differentials between countries and markets (combined with information on exchange control regimes (PO))
* Tax wedges on capital (PO)

WP72
* Introduction of money market instruments (PO)
* Expansion of banking networks (PO)
* Expansion of intern. banking networks (PO)
* Share of 5 largest banks in total assets
* Non-financial corp. borrowing and equity issues
* Bank interest rate margins
* Bank productivity
* Liability structure of banks
* Futures market developments

4. Goods markets and Protection (in WP72 the areas trade, industry and agriculture)

Wattleworth-Woglom
* Nominal tariffs
* Nominal Border Coefficient (ratio of domestic to border price)
* Effective Rates of Protection (ERP)
* Producer Subsidy Equivalent (PSE)
* Effective Rates of Assistance (ERA), and dispersion of this around the average.

WP72 - trade
* Nominal tariffs (PO)
* Coverage ratios of non tariff barriers (NTBs)
* Tariff equivalents
* Subsidy rate (difference between prices to producer and cons.)
* ERP
* ERA
* “True” protection (incl. more general equilibrium aspects)
* Applied General Equilibrium calculations

WP72 - industry
* Subsidies (in form of Cash grants, Gross cost, Net cost, Grant equivalent)
* Net profit rate
* Tobins q
* Herfindahl index
* R&D support progr.
* Patents
* Each industry’s share of production, value added, and empoyym.
* Productivity
* Salter curve

**WP72 - agriculture**
* PSE
* Consumer Subsidy Equivalents (CSE)

5. Taxation

**Wattleworth - Woglom**
No taxation heading.

**WP72**
* Tax revenues as % of GNP
* Structure of tax revenue
* Personal income tax structure (rates spread and number of brackets)(PO)
* Tax burden of aver. production worker
* Personal/corporate tax rates (PO)
* Dividend treatment (PO)
* Corporate tax rate and tax allowances (PO)
* Marginal effective tax rates on labor and capital (PO)
* Consumption taxes (type and structure) (PO)