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Institutionenanalyse

Competition through indicators of regional sustainability in a federal system

Kilian Bizer und Rolf Sternberg

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Abstract:
Indicators of regional sustainability can attempt to inform regional actors by pointing out potentials of sustainable development. In this respect, indicators are a heuristic instrument for designing policy instruments. But theoretically sustainability indicators could also be applied in horizontal and vertical fiscal relations to allocate funds among regions. Then they could induce competition either by setting standards or else by evaluating relative efforts towards sustainable development. In a way, this seems to be comparable to eco-taxation: An incentive provides for the lack of altruistic behavior to do what is best for all. And reforming fiscal relations according to sustainability indicators would come close to a revolution. Unfortunately, chances are low of fitting complex indicator systems with rather simple measures of current fiscal relations and their structural conditions. Specifically, we show that sustainable development indicators suffer four fundamental problems if applied to fiscal relations. All four are arising from the fact that highly diverse information must be condensed into one single form of information to give the incentive: money.

1
Introduction

Operable definitions of sustainable development are booming and in great demand to focus the still vague and ambiguous concept (for example, Reboratti 1999). Attempts to operationalize lead to ever more complex systems of indicators supposed to measure sustainability (OECD 1998, Jörrissen/Kopfmüller/Brandl 1999). The intended result of these indicator systems is to compare two or more empirically measured states of one region, say in 2000 and in 2001. Recently these comprehensive systems of indicators are considered for direct comparisons of regions with regard to their sustainability (Enquête-Commission 1998, 304, 397). Then, the intended result is to make statements such as "region A has greater sustainability than region B", or that "region B has undertaken more effective measures to assure sustainability in a given period than region A".

Such statements attract policy makers in two respects. First, published rankings of sustainability start a competitive process among regions to have the "greatest sustainability". Second, the rankings can be linked to fiscal relations between the regions themselves or between regions and the superior federal level, i.e. fiscal transfers between federal levels are reorganized with regard to sustainability. This option provides an explosive force to sustainability indicators, as their application to local and regional fiscal relations would increase their immediate importance.

In this paper we tackle the question of what can be expected from complex sets of indicators of sustainability in fiscal relations. To this purpose, the first step is to clarify the objective of introducing sustainability indicators to fiscal relations. Apparently, the main objective appears to be a competitive process between regions (section 2). Based on this we show that there are four fundamental problems to be resolved with current indicator systems: First, the technical difficulty of ordinal and cardinal scaling. Second, the question of whether to measure stock values, flow values or measure-related values. More serious, however, is the third problem of regional structure as regions develop path-dependently and have a regionally specific potential. Lastly, there is a fourth problem of weighting which has to be resolved by putting a variety of indicators in relation to one another in order to evaluate trade-offs unambiguously. In the context of sustainability indicators, the problem of weighting turns into a problem of aggregation, as a large number of relationships between indicators has to be defined (section 3). Based on these problems we enunciate some requirements for regional indicators of sustainability (section 4). Finally, we conclude with a rather pessimistic view of applying existing sets of sustainability indicators to fiscal relations and subsequently to competitive processes (section 5).

2

Competition as a goal of sustainability indicators for regions

Regional sustainability indicators are intended to demonstrate the extent of a region's sustainability. But regions exist in many different characterizations. The three most prominent ones are

- that within a region there should be sufficient interdependencies between the relevant processes,
- there should be some homogeneity, and
- within the area there should be some potential for regional policies.

The purely formal interpretation of regions as planning and administrative units is certainly not sufficient in the context of sustainability. The existing administrative regionalizations may have the advantage to be in congruence with regionalizations of fiscal federalism or also with data availability for socio-economic indicators. But they lack congruence with functional limits of natural resources and ecological functions.

In the context of sustainability such ecological functions must form the concept of regions. As a result we are challenged to form regions according to ecological functions while recurring on the administrative and politically functional regionalizations of the existing system. For example, the current reorganisation of river basin management as envisaged by the European Community in Directive 2000/60/EC establishes a framework for Community action in the field of water policy. The objective of Directive 2000/60/EC is to make administrative institutions compatible to the functional borders of river ecosystems and their connected groundwater systems by introducing supraregional institutions such as management plans. An equivalent plan for sustainability would cover all ecological functions. Most likely, an appropriate regionalization would result in many different overlapping regions according to the ecological functions. For example, the region covering the *river basin* of the Middle Rhine, then, is quite distinct from the region of *connected biosphere reservates* around the same area. And both differ significantly from the traditional administrative units we find in this geographical area.

Such a reorganisation of regions according to ecological functions competes with the approach of merely adjusting political and administrative competences of regions. While we observe the disadvantages of this every day, it is very likely that it will continue to exist for quite some time.

In principle, a region’s sustainability can be shown in two different ways: The traditional comparison of region A at two different points in time, or a comparison of region A with region B at the same point in time. The first point, the *intraregional comparison*, can be used as an informational instrument. The

system of indicators serves as an early warning system and as a criterion of success for the region's own efforts. But it is the second point which is of interest here: *interregional comparisons* make it possible to let fiscal flows from states to regions or from states to communities depend on the degree of sustainability as measured by the indicators. In Germany, the current system of local fiscal relations depends primarily on inhabitants as a rough measure of fiscal needs and tax revenues as a measure of fiscal strength (Bizer/Scholl 1998). Theoretically these could be substituted or supplemented with a suitable set of sustainability indicators connected to a given funds of resources provided either by the federal state or else by collecting shares from the regions themselves.

This can serve either redistributive or allocative goals. To redistribute revenues to those regions disadvantaged by lower sustainability provides funds for increasing sustainability where it is needed most. But under the assumption that less sustainable regions are those with higher economic development and higher tax revenues but lower natural resources, this seems justified only on the ground of sustainability, but not by purely economic indicators such as regional income or wealth. These regions might already be in a financial position to increase sustainability by there own means. Redistributive objectives are not easily reconciled with sustainability indicators.

On a first glimpse it seems more appropriate to provide funds as an incentive to increase sustainability, i.e. for allocative rather than distributive reasons. With this goal, regions with higher measures of sustainability would receive more funds than those with lower sustainability. The allocative goal of achieving higher sustainability introduces an element of competition to regions. Regions will attempt to achieve greater sustainability to gain more revenues from fiscal relations. As regions are in competition in many respects, for example they compete for tax revenues by attracting new businesses and households, a sustainability competition will only add more elements to this.[1]

But compared with the actual institutional set-up, say in Germany or any other federal system in Europe, a competition for sustainability would hardly fall short of an institutional revolution.[2] Despite this, there are also some theoretical problems arising from complex sets of indicators and the issue of competition.

1

Another approach of reforming fiscal relations in federal systems is to introduce elements of environmental policy into regional funding based on the traditional joint task "improvement of regional economic structures" as suggested by Karl/Ranne 2001, 107. In comparison, this approach is somewhat limited as it applies only to those regions which are covered by the Structural Funds of the EU.

2

On the dilemma between diversity as an objective as well as solidarity of Spain's regions see Castells 2001, 198. On regressive effects of local fiscal relations within East Germany's new states see Bizer/Scholl 1999 and Bird/Vaillantcourt 2001 on Canada's fiscal arrangements.

3

Fundamental problems of sustainability indicators in interregional comparison

We assume to have two regions, region A and region B. In order to keep it simple these two regions are analysed using two indicators of sustainability, N_1 and N_2. In a quadrant with N_1 on the x-axis and N_2 on the y-axis, each region can be assigned unambiguously to a point. Furthermore, let us assume that sustainability increases continuously with N_1 and N_2. Then, the further away a region is from the origin, the greater its level of sustainability.
This outlines the first problem: If, as

Figure 1 shows, regions A and B are equally distant from the origin at the arrowheads of their respective vectors, but the characteristics of their indicators are different, the indicators must be put in relation to one another in order to judge their relative degree of sustainability. If the relation is given by the length of the vectors from the origin in

Figure 1, then both indicators are weighted equally. But this is just one choice among innumerable ones. Any weighting of indicators is theoretically plausible. The frequent "equal weights approach"[3] taken by proponents of indicators demands clarification.

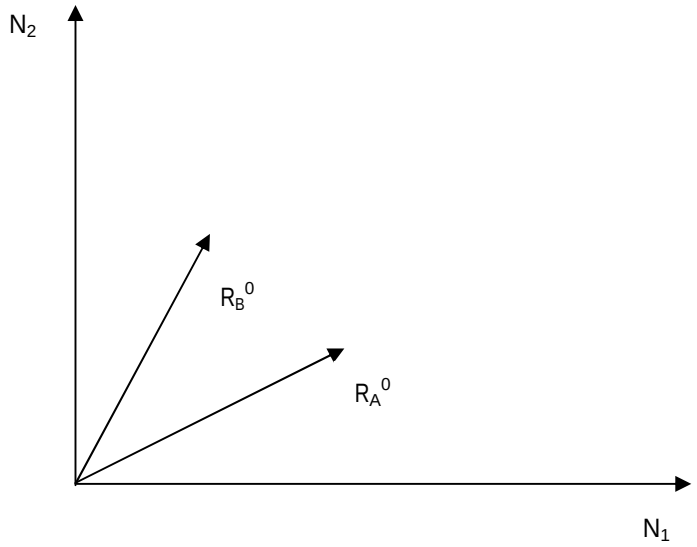

Figure 1: The problem of weighting the indicators in interregional comparison

[3] See Enquête-Commission 1998. With a critique see Ewringmann 1999. Also Gowdy 1999, Eichler 1999.

Before going into greater detail of the weighting of indicators we will briefly touch upon cardinal and ordinal scale as this increases weighting problems even further. Another complication arises from indicators being measured as either stock or flow values or as measure-dependent values. But regions also have different starting points and potentials for sustainable development. And, finally, all the relevant data must be comprised into one single sustainability index that determines the amount of funds transferred to this region instead of another.

3.1
Cardinal versus ordinal scaling

Scaling need not necessarily be cardinal in order for a comparison to be carried out. It is just as plausible for the scaling of the indicators N_1 and N_2 to be ordinal, for example, with the conditions ${}^1N_1$ and ${}^1N_2$ each representing a low contribution to sustainability and the conditions ${}^2N_1$ and ${}^2N_2$ each representing a high contribution to sustainability for the respective indicator.
With ordinal scaling, one condition has a greater level of sustainability than the other when it is better in terms of one indicator *and* is not poorer in terms of any other indicator. Figure 2 assumes that Region A achieves level 1 for both indicators at time t = 0. This is represented graphically as the intersection of the dotted lines of ${}^1N_1$ and ${}^1N_2$. Region B, by contrast, has only achieved level 1 for indicator N_2; the point $R_B{}^0$ is therefore on the y-axis. Consequently, region A has a greater level of sustainability than region B at the given point in time.

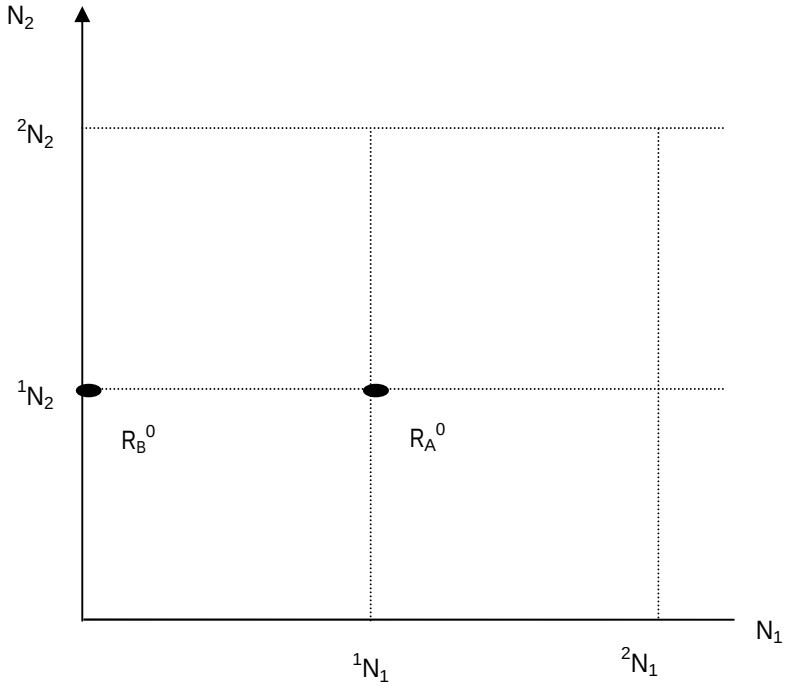

Figure 2: Ordinal scaling of indicators in interregional comparisons

3.2
Stock values versus flow values

It is usually emphasized in the context of sustainability that regions have specific characteristics, which not only reflect the individual character of the regions, but also represent a specific potential for developing in a sustainable way (Acselrad 1999; Reboratti 1999, 217). This feature is translated in Figure 3 on a cardinal scale such that regions R_A and R_B each have different levels of sustainability at time t^0, and therefore have different starting points. But both regions undergo identical changes as measured by N_1 and N_2 in period t^1, i.e., the vectors are the same length but differ in their situation and possibly – even if not in Figure 3 – in their direction.

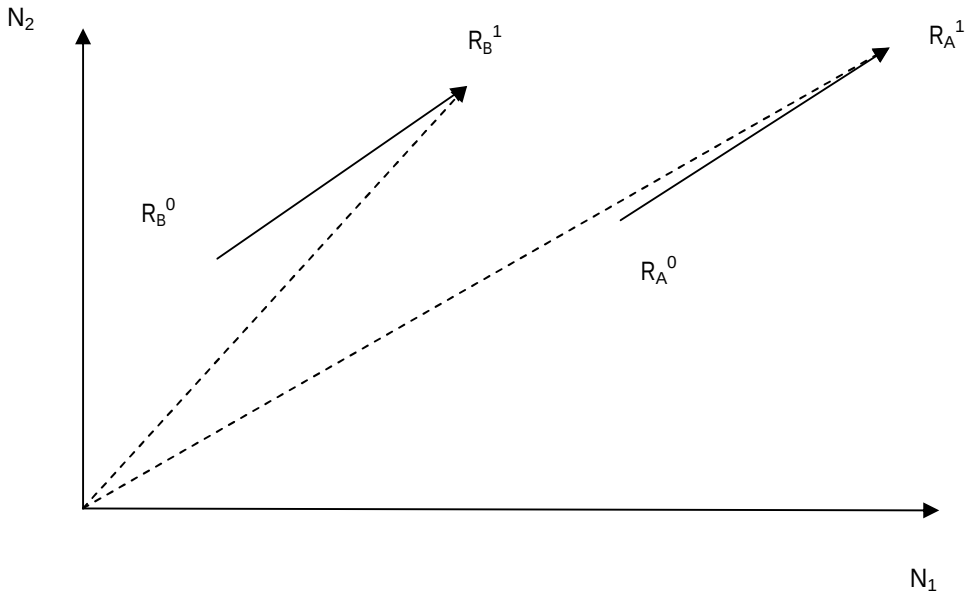

Figure 3: The problem of stock values and flow values in interregional comparisons

So if sustainability is measured using stock values region A is evaluated as considerably better than region B as its arrowhead is much further away from the origin. Obviously this does not take into account that both regions developed the same in period 1 as measured by the indicators. Now, this problem can be easily resolved by using flow values instead, thus considering only the periodical rate of change represented by the length of the arrows. But flow values suffer another shortcoming. Their application requires that there are no development thresholds, i.e. that the development is equally difficult

throughout all of N_1 and N_2. Thus, in comparison to region B, region A could argue in
Figure 3 that, at its higher level of sustainability, the same change in flow values (= length of vector) is far harder to achieve than at the level of region B. Region B could argue, however, that certain necessary conditions of development are only fulfilled upwards of a certain level and that to pass this level requires far more than to merely continue the development later on.
But there is still another shortcoming to both stock values and flow values. Neither of them shows who has an influence on what actually happens in the region; they merely show the result for the region. If the indicators are to be focused on the area of influence of a certain player, the indicators should be based on measures. Measure-based indicators display the effectiveness of the measures taken in terms of sustainability. But they do not depict the entire result, however. It is also likely to be a source of contention in many issues whether the regional level is the main player or not.

3.3
The problem of regional structure

As already discussed above, it must be clarified of whether sustainability increases constantly and evenly across the indicators or whether there are jumps, threshold values, et cetera. In other words, it depends on the relationship between the indicators and sustainability whether sustainability can be measured as a continuous and smooth function of its indicators. But even if we know these relations, this does not take into account that regions are very differently endowed and that this endowment affects the possibilities of achieving greater sustainability. Let us assume that region A is a rural area with a structure made up predominantly of villages and small towns and region B is a metropolitan region with energy-intensive chemical industry. Indicator N_1 is supposed to show nature reserve area added in a given period. Indicator N_2, on the other hand, represents the rate of change in carbon dioxide emissions, also as a flow value. Due to the high proportion of open space, region A generally has the better opportunity to turn land into nature reserves, whereas region B probably only fulfils the preconditions for nature reserves in very few open spaces. But once region A's potential for nature reserve spaces is exhausted the region’s sustainability value, if still measured in flow values, will drop to zero despite its great efforts for sustainability in previous periods. Also this problem can be resolved, in this case by using a combination of stock values and flow values, so that the absolute results are also reflected. Possibly, it could also be solved by calculating the sustainability potential of a region in $t = 0$ and adjusting payments according to the utilized potential. But this would require something like a sustainability inventory.
In the example given, region B can exclusively reduce its carbon dioxide emissions to increase sustainability. The largest reduction should be possible by moving the chemical industry out of region B. Every time a site is moved

abroad the sustainability of region B increases if sustainability is measured solely in nature reserve and carbon dioxide emissions. As global sustainability is unaffected by this regional switch such a result is not intended and should be taken into account. This could be achieved by a regional input-output table measuring „imported“ against „exported“ sustainability by covering quantities of the relevant goods and services and their effects on the sustainability index. If a region produces chemicals for an entire continent, for example, only the proportion the region itself consumes should be analysed in an inter-regional comparison. As the consumption of chemicals in itself is not a suitable factor, the import and export has to be converted in terms of CO_2-content, energy content, toxicology, etc.
In conclusion, the exchange of factors of production between regions must be reflected in the index of sustainability as well as the exchange of goods and services. Otherwise, those regions would be favoured in which positive factors (goods and services) are relatively immobile and therefore stay in the region and negative factors (goods and services) are moved out of the region. Two of the possible instruments to solve this problem are a sustainability inventory and regional input-output-tables. Both of them are more or less theoretical solutions, as they require either to know in advance to what extent sustainability can be achieved in a given region or to know the flows of sustainability-related goods and services of regions.

3.4
The problem of aggregation

We can – as in the examples given so far – take N_1 and N_2 as concrete indicators, e.g. the amount of nature reserve space per inhabitant (stock value) or the amount of nature reserve space added per inhabitant per year (flow value). It is also possible, however, to interpret the indicators as dimensions of sustainability. Then we are looking at aggregated indicators k. The dimension N_1, say the ecological dimension, would be the result of an entire bundle of indicators, say nature reserve area, carbon dioxide emissions, etc.:

$$N_1 = N (k_1, k_2, ..., k_r)$$

This also applies analogously for other dimensions. With the three dimensions of sustainability, this produces a three-dimensional picture in which under the assumption of constant scaling and smooth functional relationships, every point within can be reached by a vector from the origin. The length of such a vector denotes the sustainability value of the point.
In the case of two indicators per dimension it is still easy to keep track of the functional relations. But as the number of indicators increases, the interdependencies become more and more difficult to follow, as every indicator has to be put in relation to every other in order to achieve aggregation at the level

of the dimensions. Three indicators already mean 6 relationships.[4] If we insist that the indicators have a symmetrical effect with regard to sustainability that still leaves 3 relationships. With four indicators and symmetrical effects, we already have 6 relationships per dimension, with 8 indicators it is 28 relationships, etc.

However, the assumption of symmetrical relationships is restrictive. It does not take into account, for example, that indicators vary in their trade-offs when one indicator falls below a critical threshold that is indispensable for the existence of sustainability, for example minimal social harmony (Bizer 2000, 480). It also ignores jumps where new potential for sustainability is suddenly opened up. Such functional "anomalies" increase the number of relationships to be determined.

Let us assume we have 75 indicators to integrate within three dimensions, i.e. 25 indicators per dimension. This number is by no means unrealistic as currently drafted indicator systems show.[5] Let us further assume that we want to compare two regions to determine whether one region has a greater level of sustainability than the other. Then, to begin with, 25 indicators have to be put in relationship with each other per dimension, i.e., trade offs have to be defined. In the case of symmetrical relationships this requires 300 relationships to be defined within one dimension, and 900 relationships for three dimensions. The mere number of relationships to be determined shows the difficulties facing complex systems of indicators if they are supposed to serve comparability of regions within one aggregated indicator. And this does not include the consideration that trade offs between dimensions may also have to be evaluated.

4

The indicators can be entered in a matrix; indicators' relationships with themselves can be ignored:

	1	2	3
1	-	X	X
2	X	-	X
3	X	X	-

5

See for a regionally specific approaches Teichert 2000, www.itas.fzk.de/deu/tadn/tadn001/teic00a.htm, with a general critique see Sturm/Egli 2000. Regionally unspecific approaches are given in EUROSTAT: Indicators of Sustainable Development, and United Nations 1996.

4
Requirements of regional sustainability indicators in a competitive set-up

The first requirement of competition is to comprise all relevant data into one sustainability index to find a common denominator for transferring funds to regions. However diverse the content covered by the sustainability indicators, in the end all the information must be condensed into one index, which sets up the conditions of competition. As discussed in the beginning, the goal of competition is to increase sustainability by giving fiscal incentives. Such a competitive process functions, if the competing players know the rules of the game and if they know how their action can influence their receipts.
Of course, it is a general problem of regional competition to condense information on the status of the regions into a reliable index. But this problem is especially relevant in the context of sustainability, as its normative content emphasizes diverse and path-dependent development options that apparently cannot be judged according to one single index function.

Aside from setting up a competitive process, indicators of sustainability can also serve the aim of providing intraregional information to prepare decisions. If the aim is merely to provide information within a region the problem of scaling and the question of stock versus flow values are less critical. In this context it is sufficient to establish a catalogue of indicators by which progress in various policy fields can be shown. The information can be depicted according to the informational demand. Such information gathering can prepare a balanced decision on trade-offs between indicators, but a balanced decision of trade-offs is not part of this approach itself. As a consequence, the requirements for such intraregional informational purposes are rather low.
In the case of fiscal funds being allocated by the indicators, direct interregional comparability must be established. This requirement intensifies the problem of regional structural differences and aggregation. The comparisons yield, first, which region has reached a relatively more sustainable situation in absolute terms (stock values) or, second, in which region the greatest contributions were made to sustainability in a given period (flow values), or, third, which region has promoted sustainability most effectively as a player (measure related values). In the first case, the situation of regions is recorded by using stock indicators. In the second case, flow values are established as annual (relative) changes and in the third case, measure indicators are applied to consider which possibilities were open to the player to exert influence. Finally, mixed forms of these types of indicators are also feasible, but the mix of stock values, flow values and measure-related values is not without problems with regard to aggregation, however.
Depending on the goal of the indicator system, there is the problem of weighting and aggregating of indicators. As we have shown, even with a low

number of indicators, a high number of relationships must be established to evaluate trade offs between the indicators for a precise interregional comparison. This is best possible when the number of indicators is low. But it is too simple to conclude that the sheer number of indicators represents the problem so that it would suffice to require indicator systems to have as few indicators as possible.[6] More to the point, a sustainability index applied to fiscal relations requires value-laden decisions on trade-offs between all indicators. Of course, one possible solution is to keep the number of indicators low.

But if the number of indicators is low, only a small part of the issues can be covered which are currently subsumed under sustainability. In discussions to date, the subject of sustainability presented the opportunity to constantly develop and introduce new indicators (see for example Sachs 1999, 32). It was readily ignored that relationships between indicators must be determined at one point to provide clear-cut policy recommendations or to allocate funds between regions. A system of indicators of sustainability should include as few indicators as possible in order to be transparent and representable in its mutual relationships.

A simple system of indicators presents the problem, however, that regional peculiarities would be neglected. This certainly conflicts with the normative nature of the concept of sustainability (Acselrad 1999, 38; Braidotti 1999, 77; Eichler 1999). It is particularly the regional peculiarities which should promote sustainability by diversifying ecologically sound strategies. If they are neglected it is altogether questionable whether a competition for sustainability makes sense. Because diverse regional approaches cannot be developed by introducing one uniform interregional comparison.

Finally, there is one more requirement in the case of an interregional comparison in that the imports and exports of a region that are relevant to sustainability have to be recorded, in order to rule out free-riding by regions. Otherwise, as was shown with the example of the chemical industry, it is possible to import sustainability simply by moving production sites.

6

A suitable example for a reasonably successful system of indicators is the municipal financial balance in which the financial requirements are indexed per inhabitant, for example, in a simplified form. The financial requirements calculated in this way are compared with the local fiscal potential determined using local revenues in order ultimately to balance out differences to a certain extent. See Bizer/Scholl 1998.

5
Conclusion and outlook

Sustainability is a particularly imprecise term due to its still ambiguous normative content. The development of indicators somewhat eased this problem by operationalizing the concept. But operationalizing comes to an end if indicators are not linked to clear objectives, which range from merely providing information as an intraregional heuristic to generating incentives for interregional competition for funds. Of course, these objectives are connected to different requirements for the establishment and linking of indicators.

The problems of weighting and aggregation as well as differences in regional structure are central to providing fiscal funds through sustainability indicators. The key is that it is not possible to aggregate indicators without evaluating the relationships between them – their trade offs.

It is in the nature of indicators, however, that they simplify. They are intended to indicate something and they themselves cannot be what they attempt to indicate. They must ignore most of the facts, in order to depict the most important aspect. This aspect can only be defined, however, if the objective to be pursued using the indicators is also clear. The approach to date of putting as many indicators as possible into a complex matrix of effects is certain to lead to problems if the objective is to finally link indicators of sustainability and fiscal relations.

Overall, it can be seen that fiscal federalism based on complex regional sustainability indicators pose considerable difficulties that are not easily resolved. These difficulties are centred on the problems of regional structure and of aggregation, which appear to push comparability for competitive incentives far off into distance. So even if it would be a revolution to reorganise fiscal relations around sustainability, this revolution is far from breaking loose.

6
Bibliography

Acselrad, Henri 1999: Sustainability and Territory: Meaningful Practices and Material Transformations, in: Becker, Egon; Jahn, Thomas (eds.), 37- 58.

Becker, Egon; Jahn, Thomas (eds.) 1999: Sustainability and the Social Sciences, A Cross-Disciplinary Approach to Integrating Environmental Considerations into Theoretical Reorientation, London – New York.

Becker, Egon; Jahn, Thomas; Stiess, Immanuel 1999: Exploring Uncommon Ground: Sustainability and the Social Science, in: Becker, Egon; Jahn, Thomas (eds.), 1-22.

Bird, Richard M.; Vaillantcourt, Francois 2001: Fiscal arrangements for maintaining an effective state in Canada, Environment and Planning C: Government and Policy, Vol. 19, 163-187.

Bizer, Kilian 2000: The social dimension of sustainability (Die soziale Dimension in der Nachhaltigkeit), Journal of Environmental Research (Zeitschrift für angewandte Umweltforschung), Vol. 13, No. 3/4, S. 420-434.

Bizer, Kilian; Scholl, Rainer 1998: Problems of Local Finance in the New Länder of Germany (Finanzprobleme der Gemeinden in den neuen Ländern), Berlin.

Bizer, Kilian; Scholl, Rainer 1999: Regressive Effects in Local Fiscal Relations of the German New Länder, Journal of Economics and Statistics, Vol. 218, No. 5/6, 695-711.

Braidotti, Rosi 1999: Towards Sustainable Subjectivity: A View from Feminist Philosophy, in: Becker, Egon; Jahn, Thomas (eds.), 74-95.

Castells, Antoni 2001: The role of intergovernmental finance in achieving diversity and cohesion: the case of Spain, Environment and Planning C: Government and Policy, Vol. 19, 189-206.

Eichler, Margrit 1999: Sustainability from a Feminist Sociological Perspective: A Framework for Disciplinary Reorientation, in: Becker, Egon; Jahn, Thomas (eds.), 182-206.

Enquête-Commission "Protection of Humanity and the Environment" of the 13th German Bundestag (Hrsg.) 1998: The Concept of Sustainability, Bonn.

EUROSTAT: Indicators of Sustainable Development, Luxembourg.

Ewringmann, Dieter 1999: Sustainability – Leerformel oder Forschungsprogramm?, Forschungsbericht Nr. 01-99 des SFB 419 der Universität zu Köln, Teilprojekt C5, Köln.

Gowdy, John 1999: Economic concepts of sustainability: reallocating economic activity within Society and Environment, in: Becker/Jahn 1999, 162-181.

Jörrissen, J.; Kopfmüller, J.; Brandl, V. 1999: Ein integratives Konzept nachhaltiger Entwicklung, Forschungszentrum Karlsruhe, Wissenschaftliche Berichte FZKA 6393.

Karl, H.; Ranne; O. 2001: Regional policy and the Environment – the case of Germany, European Environment 11, 103-111.

Martinez-Alier, Juan 1999: The socio-ecological embeddedness of economic activity: the emergence of a trandisciplinary field, in: Becker/Jahn 1999, 112-139.

OECD 1998: Sustainable Development Indicators, OECD Expert Workshop, 8-9 October 1998, Paris.

Reboratti, Carlos E. 1999: Territory, Scale and Sustainable Development, in: Becker, Egon; Jahn, Thomas (eds.), 207-222.

Redclift, Michael 1999: Sustainability and Sociology: Northern Preoccupations, in: Becker/Jahn 1999, 59 – 73.

Sachs, Ignacy 1999: Social sustainability and whole development: exploring the dimensions of sustainable development, in: Becker/Jahn 1999, 23-58.

Sagbas, Isa 2001: An econometric analysis of local fiscal response to revenues sharing in Turkey, Environment and Planning C: Government and Policy, Vol. 19, 85-101.

Sturm, A./Egli, N. 2000: Nachhaltigkeitsindiaktoren – Ein Strukturvorschlag für die Schweiz. Published at: www.ellipson.com\projects\nachhaltigkeitind.htm.

Teichert, V. 2000: Developing regional indicator systems for the regional sustainability of Heidelberg (Entwicklung von Indikatorensystemen zur (regionalen) Nachhaltigkeit von Heidelberg), Forschungsstätte der Ev. Studiengemeinschaft (FEST). In: TA-Datenbank-Nachrichten, Vol. 9, No. 1.

United Nations 1996: Work Programme on Indicators of Sustainable Development of the Commission on Sustainable Development. New York 1997.

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Berichte aus der Forschung

Bücher, Studien und Diskussionsbeiträge

Die Forschungsgruppe sofia fragt nach der Funktionsfähigkeit von Institutionen und den Möglichkeiten, durch veränderte institutionelle Rahmenbedingungen staatliche oder gesellschaftliche Steuerungsziele zu erreichen. Dem sofia-team gehören Ökonomen und Juristen ebenso an wie Politikwissenschaftler, Soziologen, Ingenieure und Naturwissenschaftler (-innen).

Der sozialwissenschaftliche Begriff der "Institution" bestimmt das gemeinsame methodische Herangehen: Institutionen sind danach "Spielregeln", die sich Gruppen oder Individuen geben, um bestimmte Ziele zu erreichen. Institutionen umfassen damit sowohl rechtliche Regelwerke als auch Regeln in Organisationen (z.B. im Unternehmen, im Verein oder in einer Partei) bis hin zu stillschweigenden Konventionen.

Die Funktionsfähigkeit von Institutionen ist abhängig von der Interessenlage der Beteiligten. Die Kernfragen lauten: "Welche Faktoren bestimmen die Motivationslage und welche Entscheidungsregeln bestimmen das Handeln?" Parallel sind die Ziele der Institution zu betrachten: "Wie lassen sich diese so erreichen, dass zugleich die Eigenmotivation der Beteiligten möglichst hoch bleibt?" Eine derart aufgebaute *Institutionenanalyse* ermöglicht ein besseres Verständnis des Zusammenspiels der Akteure, aber auch der Steuerungsbeiträge der verschiedenen institutionellen Rahmenbedingungen. Dies gilt nicht nur für den status quo, sondern auch für mögliche alternative Gestaltungen der Rahmenbedingungen.

Die Forschungsgruppe bearbeitet zur Zeit (Juni 2002) folgende Projekte:

- Interdisziplinäres Verhaltensmodell für die wissenschaftliche Politikberatung
- Risikokommunikation und e-Government
- Evaluation des Drei-Städte-Klimaschutzprojekts
- Standardisierung im Naturschutz/Naturschutz in der Normung
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