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ganizational status of some social insurance might lead to major changes in the share of the public sector – for example when a given social insurance, which has already reached almost complete coverage in a given population, becomes formally compulsory. On the other hand, formally equivalent social insurances might be associated with quite different organizational characteristics in different countries, and, above all, quite different service profiles. Thus, a compulsory health insurance might not cover important health-related risks (dentists, for example) and require an important participation of the insured for other services which are formally covered by the insurance. In order to evaluate the comparative size of the public sector of a given country, we should, therefore, not only take into account the size of its expenditures, but also the quality of its services and its infrastructure – quite a program for future research.

Public Choice and the Public Sector*

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Analysis of the Public Sector

To discuss the size and the development of the public sector is certainly a worthwhile task. Jan-Erik Lane and Hanspeter Kriesi are to be commended for making an effort to seriously study it for Switzerland, using the most recent data available. It is even more important to consider the possible consequences for both policy and research of a newly measured public sector as done by Jan-Erik Lane. Unfortunately Lane is only able to do so for a rather short period of time. Whether the burden of the public sector is such as to impede Swiss economic growth is indeed a crucial issue. Does Switzerland end up with the Swedish disease after all?

What does the Size of the Public Sector Tell Us?

Jan-Erik Lane's discussion is based on a definitional distinction: a country with a public sector of about 35 percent of gross national product (GNP) is labeled "welfare society", a country with a share of around 50 percent of GNP "welfare state". For economists at least, such a classification is somewhat difficult to follow. The reason is that the share of public expenditures in national income mainly reflects a statistical convenience but has little content as such. There are at least four basic reasons why government expenditures are ill suited to capture the importance of public activities, and therefore the distinction between various "types" of society (e.g. "welfare state" or "welfare society"):

The activity of the public sector is measured by its cost or input, rather than as output consonant to the other items in the national accounts (and there with GNP). No productivity changes are allowed for, though such changes obviously also occur in the gov-

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ernment sector. The boundaries of the public sector are by nature ill defined. Should an enterprise whose shares are owned to 70% by the state be counted as public or rather private (as it has to compete in a market setting)? Is it appropriate to include a given social insurance in the calculation of the public sector? As Hanspeter Kriesi points out in this issue, small changes in the organizational status of, e.g., health insurance can lead to a substantial rise in the size of the public sector.

A large part of public activities occur in the form of all sorts of regulations which often have negligible public expenditure effects. The shadow economy is disregarded in most national accounts, or at least the revisions of national income appear somewhat erratic (Greece, for instance, has revised upward its GDP by over 20%; Dalgaard 1998: 72). These fundamental problems of measuring the public sector become relevant when countries are compared whose underlying factors differ (e.g. one country relies more strongly on regulations than another one), or when the development over time varies (e.g. the unrecorded shadow economy has grown more strongly in one period compared to another period). As a result, the three implications drawn by Lane in his final section are questionable and difficult to support:

The distinction between "welfare states" and "welfare societies" becomes quite blurred and is of limited usefulness. It does not serve well to distinguish the two types. For this purpose, a differentiated analysis of the public (and private) sector is needed. There is no way around analyzing aspects such as government productivity, public regulations, or the shadow economy (e.g. Schneider and Pöll 1998). The impact of the burden of the public sector on economic growth is insufficiently captured by the share of public expenditures; there are many other determinants of growth related to, and originating from, the public sector (see the burgeoning literature on the econometrics of growth, initiated by Barro 1991; e.g. Brunetti, Kisunko and Weder 1998; Levine and Renelt 1992; Sala-i-Martin 1997). The same as has just been noted for growth also applies to income distribution.

The Role of Public Choice

Jan-Erik Lane accuses the Swiss Public Choice school of having misinterpreted the size of the public sector in Switzerland. What is true is that the share of government expenditures in GNP has been of little interest to modern political economists. Rather, they study *causal relationships* (and in this do not differ from much of political science). A focus of their work has in particular been to study the *effect* of Swiss institutions on various indicators of government activity (e.g. Pommerehne 1990), and, even more importantly, on economic outputs and on economic behavior (e.g. on tax evasion, as in Pommerehne and Weck-Hannemann 1996), or on civic virtue, as in Frey (1997). The first mentioned effect of more direct political participation rights on government activity depends on the net outcome of two countervailing factors: Because of more intensive political competition, the government is more efficient and spends less money to reach a given service level. Hence the size of the government sector should be smaller. On the other hand, the greater political control provides citizens with an incentive to grant the government more economic resources. Hence the

government sector should be larger.[10] Lane seems to assume that Public Choice persons *always* take it for granted that the first factor dominates. But this is not the case. Rather, an effort has been made to differentiate the two factors as well as possible.

The two authors of this contribution have recently made an effort to study the causal effect of the extent of direct-democratic institutions in Swiss cantons on reported subjective well-being or happiness (Stutzer and Frey 1999). Here, we wish to shortly sketch how life satisfaction data can be applied to analyze government activity.

Public Sector, Direct Democracy and Happiness

How do higher taxes affect individual well-being? Are higher taxes a rising burden and do they, therefore, reduce satisfaction with life? Or, are they a blessing due to a larger supply of public goods? Another important issue is whether direct-democratic control changes the effect of taxes on subjective well-being. We try to answer these questions by empirical research. The data on life satisfaction for Switzerland in 1992 are reported in a large survey conducted by Leu, Burri and Priester (1997).[11] These data are combined with data on the tax burden and on the type of direct-democratic budgetary decision making in the 126 largest Swiss cities.[12] In addition, an extensive set of variables are used in the multiple regressions which serve to control for influences on happiness independent of the tax burden in different democratic institutions (such factors are, e.g., age, sex, nationality, education, health, employment status, and income). Table 1 shows the results for a micro-econometric well-being function in which we focus on the effect of the tax burden on happiness.

The estimate reveals that the tax burden has no statistically significant effect on happiness; the t-value is 0.563 and herewith well below the required level. In contrast, various demographic and economic variables systematically affect subjective well-being. The coefficients should be interpreted as follows: a rise in the independent variable by one unit changes the probability of persons stating that they are *completely satisfied*. The signs of the coefficients indicate the direction of this change.[13] The size of the coefficients can be interpreted relative to the other coefficients. According to this interpretation, being unemployed has an effect five times larger on satisfaction with life than falling in one of the top two income categories.

[10] These effects hold ceteris paribus. There are, of course, a large number of other factors, which have an effect on the size of the public sector (e.g. Mueller 1989, chapter 17).

[11] Data for the dependent variable "life satisfaction" are based on the answers to the following question: "How satisfied are you with your life as a whole these days?". Simultaneously, the respondents were shown a table with a ten point scale of which only the two extreme values ("completely dissatisfied" and "completely satisfied") were verbalized. The terms "life satisfaction", "(reported) subjective well-being" and "happiness" are used interchangeably.

[12] Data on the tax burden are collected from the Swiss association of cities (1993: 72). The tax burden is measured as the percentage of a labour income of SFr. 50'000.-. It varies between 3.75% in Zug and 11.69% in Worb.

[13] The classified variables (e.g., age, or education) are constructed as dummy variables. For these cases the signs of the coefficients show the direction of the change in comparison to the respective reference group (e.g., "people younger than 30", or "people with low education").

Table 1: Tax Burden and Satisfaction with Life in Swiss Cities in 1992

Variable	Coefficient	T-value
Constant	2.486**	20.902
I. Demographic variables		
Age 30 – 39	-0.120**	-3.391
Age 40 – 49	-0.050	-1.283
Age 50 – 59	-0.017	-0.454
Age 60 – 69	0.249**	2.914
Age 70 – 79	0.372**	4.047
Age 80 and older	0.447**	3.225
Female	-0.044	-1.554
Foreigner	-0.192**	-6.331
Middle education	0.006	0.207
High education	-0.005	-0.125
Poor health	-0.687**	-23.726
Self-employed	-0.043	-1.128
Housewife	0.146**	3.554
Other employment status	0.013	0.239
II. Economic variables		
Unemployed	-1.063**	-15.310
Equivalence income SFr. 1000 – 2000	-0.041	-0.388
Equivalence income SFr. 2000 – 3000	0.030	0.348
Equivalence income SFr. 3000 – 4000	0.124	1.432
Equivalence income SFr. 4000 – 5000	0.291**	3.322
Equivalence income SFr. 5000 – 6000	0.201*	2.210
Equivalence income SFr. 6000 and more	0.191*	2.155
III. Fiscal variable		
Tax burden	0.005	0.563
Number of observations	2788	
Log likelihood function	-4650.979	
$Chi^2(34)$	520.150	
McFadden R^2	0.054	

Sources: Leu, Burri and Priester (1997), Swiss Association of Cities (1993); *Notes*: Weighted ordered probit estimation. The dependent variable is satisfaction with life on an eight point scale (scores of 1, 2 and 3 were aggregated). Reference groups are 'people younger than 30', 'men', 'Swiss', 'people with low education', 'healthy people', 'employed people' and 'people with an equivalence income lower than Sfr. 1000'. Additional control variables (not shown): family setting (5 variables), type of household (1 variable), region (4 variables) and language (2 variables). Significance levels: '*' $0.05 < p < 0.10$, * $0.01 < p < 0.05$, ** $p < 0.01$.

In the next step the interaction of direct-democratic control and taxes is investigated. For this purpose, an index variable for direct-democratic budgetary decision making in Swiss cities is constructed. The index captures three aspects of budgetary decision making: i) budget draft, ii) tax rates and iii) budget deficit. If there is a compulsory referendum, an optional referendum, or a local assembly available to the citizenry, the respective procedure of decision making is labeled as direct-democratic. The index variable is constructed as follows: if there is direct-democratic decision making on budget draft or budget deficits as well as on the tax rates, the value of the index is 2. If there is only direct-democratic decision making on the tax rates or on the budget draft or deficit, the value of the index is 1. Where all the budgetary decisions are taken solely by the parliament or the executive, the value of the index is 0.[14] Table 2 reports the effect of introducing an interaction term combining the burden of taxation and the degree of democratic participation possibilities in Swiss cities as described above.[15] The interaction term shows the additional effect of taxation on happiness if citizens have more direct-democratic participation possibilities.[16]

The burden of taxation now has a statistically significant negative influence on happiness, while the interaction term has a statistically significant positive effect. The negative effect of three additional percentages of taxation in a city with purely representative budgetary decision making is a tenth of the effect of being unemployed. However, four fifth (index value 2*0.014/0.036) are compensated if there is extended direct-democratic budgetary decision making in the city. Our estimate thus suggests that in those cities with extensive direct participation rights, the citizens are more prepared to allocate resources to "their" government (cet. par.) than in less directly democratic cities. However, the negative effect of a larger tax burden on happiness is not fully compensated by the positive effect when the higher tax burden occurs under direct-democratic decision rules. We hope that our cross-city analysis of different tax burdens and individual happiness inspires future research on how citizens evaluate the public sector.

[14] The following descriptive statistics indicate the share of city residents facing each of the three institutional settings distinguished. Most of the cities have extended direct-democratic rights with respect to budgetary decision making. No less than 63 percent of city residents fall into the top category (index = 2). However, 21 percent of city residents belong to the bottom category of solely representative budgetary decision making (index = 0). The middle category (index = 1) contains 16 percent of city residents. The data source is Feld and Kirchgässner (1999).

[15] The coefficients for the control variables (not shown) are almost unaltered and there are no changes in the significance levels.

[16] The interaction term is constructed as a mathematical product of the two variables direct-democratic decision making in Swiss cities and tax burden (= direct-democratic budgetary decision making x tax burden).

Table 2: Tax Burden, Direct Democracy, and Satisfaction with Life in Swiss Cities in 1992

Variable	Coefficient	T-value
Constant	yes	
I. Demographic variables	yes	
II. Economic variables	yes	
III. Fiscal and interaction variables		
Tax burden	-0.036*	-2.831
Tax burden x direct-democratic budgetary decision making in Swiss cities	0.014**	4.974
Number of observations	2788	
Log likelihood function	-4646.458	
$Chi^2(34)$	529.191	
McFadden R^2	0.055	

Sources: Feld and Kirchgässner (1999), Leu, Burri and Priester (1997), Swiss Association of Cities (1993).; *Notes*: See Table 1. "Yes" means that the variables included in Table 1 are also included in this estimate but that they are not reproduced here for reasons of space.

In our view, the analysis by Jan-Erik Lane of the public sector size in Switzerland initiated very interesting interdisciplinary work. Hanspeter Kriesi's investigation on the public sector statistics is valuable not only for political scientists but also for economists. The controversy reveals that the authors emphasize the political process and the ultimate outcome to varying degrees in their contribution. We think that further research on the size of the public sector has to stress the process of decision making. It is not only important for the outcome itself but also for the evaluation of the outcome by the citizens.

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