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THE STUDY OF HEALTH-CARE PROVIDERS IN LJUBLJANA: SAMPLING AND METHODOLOGY

Introduction

The present article introduces the methodology of a survey study among plural health care providers in the narrower area of the city of Ljubljana. It is important to know how appropriate the data obtained is for a broader representation of the process of pluralization within Slovenia. Hence, the article is organized into a short series of logical steps. First, it systematically describes the increasing pluralization of health care providers in Slovenia from 1993 onwards both from a financial and a professional (human resource) aspect. By comparing different official sources, it also checks the consistency and validity of the data, which comes from the National Health Insurance Institute (financial aspect) and from the Institute for Public Health (human resource aspect). This is also an important interim step for survey data validation. Next, the sample designs for two quota samples are presented: one deals with physicians working in public health care institutions, the other deals with physicians working in private practices in Ljubljana at the primary health care level. Some basic characteristics of the realized samples are compared with the official data. From the comparisons, an overall judgement is made about the possibility of generalizing the findings of the two samples to a larger population (Ljubljana as a region, Slovenia as a whole nation).

Pluralization dynamics of primary health care providers in Slovenia

The first efforts towards a private medical practice in Slovenia commenced even before the submission of the new Health-care Act in December 1992. They were weakly justified only through the internal permission of the minister at the time, who allowed some freedom in private initiatives among physicians in public health care institutions. Quasi-private medical practices emerged in the form of *self-payment* clinics, within the existing public health-care institutions. These clinics were in the spirit of the early transition period and caused the leaders of public health care institutions to stimulate their "better" physicians, mainly specialists (gynaecologists, dentists, and ophthalmologists).

So, in the afternoons, after finishing their normal duties, the doctors concerned proceeded to work further, but now on their own, in a for-profit arrangement (fee-for-service). Their users were patients who were willing to pay for an immediate medical service instead of waiting in a long queue to receive a free' (publicly paid) service. A variety of prices for the former services covered mainly professional medical treatment and usually excluded other kinds of general costs. There was an initial probation of sharing these payments between medical institutions and the operating physicians.

On the other hand, the colleagues of these physicians, having no such private' opportunities, of course suffered as a result. Furthermore, public reactions to these self-payment clinics were mainly hostile. By using market mechanisms in special medical service delivery, equal access to public services was obviously harmed. The self-payment clinics were soon abandoned in favor of a more regulated form of private practice.

There are two basic forms of private medical practice. The majority of physicians, willing to make the transition from a public position to a more private arrangement, seek a concession from the public authorities. Through a concession, an applicant becomes a single chain in a private extension of the public network of health care providers.[1] A minority of applicants seek only to register themselves as true-market providers and do not seek a concession.

The regulated pluralization of providers started in 1993 and is still under way (table 1). It drew especially doctors at the primary health level, i.e., general practitioners, dentists and certain specialists.[2] A private physician is usually a doctor who has previously worked within a public health-care institution. After a successful public-private transition he/she acquires a concession and usually tries to become an annually paid contractor of the Health Insurance Institute. By signing a contract, he/she is obliged to perform the planned share of public health care programs within the 'public' network of mixed health care providers in Slovenia.

From the last row in Table 1 we can see that the percentage of expenditure on private practice increased from 4.5% in 1995 to about 7.0% in 1998, in the total health care program expenditures. The estimated number of general practitioners (calculated from program hours contracted) is roughly the same throughout the whole period. This means that the number of general practitioners in private practices increased only by about as much as the number of general practitioners in public health institutions decreased. The total sum of expenditure on dental services actually decreased over the period observed; the private practices of dentists, from the system point of view, are much 'cheaper' than the public ones (for dentists, a major shift towards direct fee-for-service payments was tacitly allowed).

Table 1
Pluralization dynamics of health care providers in the public-private mix at the primary health-care level in Slovenia for the period 1992-1998: public-private structure and estimated number of physicians n* (all these figures estimated from program hours contracted between providers and the Health Insurance Institute of the Republic of Slovenia)

		1992	1993	1994	1995	1996	1997	1998
No. of private contracts		43	133	339	501	659	791	877
No. of new contracts			90	206	162	158	132	86
No. of rejected contracts			16	25	34	38		
General Practitioners est.	est. public private *(est. n*)*			93.2% 6.8% (1191)	91.9% 8.1% (1185)	88.6% 11.4% (1202)	87.35% 12.7% (1205)	85.8% 14.2% (1218)
Dentists	est. public est. private *(est. n*)*			86.2% 13.8% (1058)	77.4% 22.6% (1022)	71.0% 29.0% (1048)	66.4% 33.6% (1041)	63.0% 37.0% (1027)
Specialists	est. public est. private *(est. n*)*			93.0% 7.0% (871)	88.7% 11.3% (929)	89.0% 11.0% (1109)	87.8% 12.2% (1230)	87.3% 12.7% (1284)
TOTAL primary health care	est. public est. private *(est. n*)*			90.8% 9.2% (3121)	86.2% 13.8% (3137)	83.2% 16.8% (3359)	81.2% 18.8% (3483)	79.7% 20.3% (3529)
Percentage for private practices in total health care program expenditure (in %)					4.5	4.61	5.79	6.95

Source: Annual Reports of the Health Insurance Institute of Slovenia (1992 - 1998)

Only at the specialist level did the estimated number of physicians - i.e., allocated funds - increase. However, this was a directed policy issue: the Health Insurance Institute permanently encouraged increased outpatient care, performed by contracted specialists. The reason behind this lies in the fact that, over a long-term period, such a practice should diminish the system expenditures for stationary health care within public hospitals.

Regional dispersion of public funds allocated to private practices in 1998

Regional dispersion of the public funds allocated to private practices, should uncover to a deeper extent the differential emerging in private practice in Slovenia (Table 2). One would undoubtedly expect Ljubljana, as the capital city, to be the most prominent place within the country for developing these new medical quasi-markets. Ljubljana receives 30.8% of all public funds allocated to private practice in Slovenia, which is a sum almost equivalent to that of Maribor, Celje and Koper combined (36.2%); the other six health (insurance) regions in Slovenia receive the remainder.

Table 2
Allocation of public funds to private practices within the ten Slovenian insurance regions in 1998 (estimates from program hours contracted between providers and the Health Insurance Institute of the Republic of Slovenia)

Regional units (HIIS division)	Structure %	Structure of funds for primary health care within regions			
		Total Primary Health Care	General practitioners	Dentists	Specialists
Ljubljana	30.8	100.0%	26.9	48.9	24.2
Maribor	14.8	100.0%	27.5	44.0	28.4
Celje	10.9	100.0%	23.8	60.0	16.3
Koper	10.6	100.0%	30.8	51.3	17.9
Kranj	9.9	100.0%	16.4	64.4	19.2
Ravne	7.1	100.0%	15.4	63.5	21.2
Murska Sobota	6.5	100.0%	31.3	43.8	25.0
Nova Gorica	3.9	100.0%	6.9	62.1	31.0
Novo mesto	2.6	100.0%	9.5	81.0	9.5
Kr{ko	2.4	100.0%	27.8	66.7	5.5
TOTAL Slovenia	100.0 (736*)	100.0%	24.2	53.7	22.1

** The difference between the totals in Table 1(716) and Table 2(736) is due to the different period of data collection.*
Source: Annual Report of the Health Insurance Institute of Slovenia, 1998

The structures within regions are interesting in terms of comparison, as we can find a kind of common regularity here. On average, a quarter of the funds is usually allocated to general practitioners, more than half is assigned to dentists, and from about one fifth to one quarter is allotted to specialists. However, large variations between regions exist: in Novo mesto and Nova Gorica there is a lack of general practitioners among private physicians.

Regional dispersion of medical human resources for primary health-care in 1997

Territorial dispersion of an increasingly plural medical practice in Slovenia is from the substantial point of view a mixed issue: it is partly controlled by stakeholders, but partly it just happens. The primary health care system in Slovenia, which is now under pluralization, thus includes differential regional ratios of physicians employed in public health care centers, and of private physicians with concessions, employed in private practices. We can observe official data for the number of physicians at the primary health care level for 1997 (Table 3). This level includes general practitioners, dentists and other specialists or physicians on specialization (gynaecologists, roentgenologists, pulmonologists, pediatricians, specialists in medicine in schools or in the work-place). Residents, i.e. a probationer in medicine, are also included. Among private physicians, only those are included who have registered their private practices as companies.[3]

We can see that in 1997, at the primary health care level in Slovenia, there were about 2.700 physicians fully employed in both sectors: there were about 73% in the 'public' sector and about 27% in the 'private' sector. For a comparative illustration of regional dispersion of human resources, we can produce a similar distribution table (Table 4, year 1997) as we did for public funds allocated to private practices (Table 2, year 1998).

Table 3
Number (n) of 'public' (employed within public health centers) and 'private' (employed in private practices) physicians in primary health care, by the 9 health regions of Slovenia, in 1997

		Total Primary Health Care	General practitioners	Dentists	Specialists
Ljubljana	Public 97	764	172	244	348
	Private 97	241	18	162	61
	Total n	1005	190	406	409
Maribor	Public 97	242	62	103	77
	Private 97	90	4	46	40
	Total n	332	66	149	117
Celje	Public 97	242	50	59	133
	Private 97	122	6	73	43
	Total n	364	56	132	176
Koper	Public 97	146	36	41	69
	Private 97	55	4	41	10
	Total n	201	40	82	79
Kranj	Public 97	189	23	51	115
	Private 97	80	0	63	17
	Total n	269	23	114	132
Ravne	Public 97	47	14	12	21
	Private 97	21	0	14	7
	Total n	68	14	26	28
Murska Sobota	Public 97	104	16	28	60
	Private 97	35	3	20	12
	Total n	139	19	48	72
Nova Gorica	Public 97	114	28	38	48
	Private 97	44	2	31	11
	Total n	158	30	69	59
Novo mesto	Public 97	129	37	44	48
	Private 97	28	1	23	4
	Total n	157	38	67	52
TOTAL Slovenia	Public 97	1977	438	620	919
	Private 97	716	38	473	205
	Total n	2693	476	1093	1124

Source: Health Statistical Annual - Slovenia 1997 (table 18-6, pp.196-9718-10, pp.300-317), Institute for Public Health.

Table 4
Allocation of medical human resources (physicians) in private practices within the nine Slovenian health regions (Institute of Public health division) in 1997

Regional units (IPH division)	Structure %	Structure of funds for primary health care within regions			
		Total Primary Health Care	General practitioners	Dentists	Specialists
Ljubljana	33.7	100.0%	8	67	25
Celje	17.0	100.0%	5	60	35
Maribor	12.6	100.0%	4	51	45
Kranj	11.2	100.0%	0	79	21
Koper	7.7	100.0%	7	75	18
Nova Gorica	6.1	100.0%	5	70	25
Murska Sobota	4.9	100.0%	9	57	34
Novo mesto	3.9	100.0%	4	82	14
Ravne	2.9	100.0%	0	67	33
TOTAL Slovenia (No. of physicians)	100.0 (716)	100.0% (716)	5 (38)	66 (473)	29 (205)

The regional structure of the medical human resource system in private arrangements in Slovenia reveals a slightly different order of ranks[4] as is the case with allocated public funds (Table 2); the value of the Spearman's rank correlation coefficient[5] is 0.85. This means quite a strong similarity in ranks of categories between the two series. In Ljubljana there is a similar concentration of medical human resources as there was in the case of funds allocated to Slovenian private health care practice (about one third of funds and one third of human resources). Also, from distributions of human resources by specialization within regions, we can again see a weak but consistent regularity: dentists on average represent about 60 - 80% of private doctors within every region, and general practitioners hardly reach one tenth of the total.

The above similarity in distributions across regions allows for a sample approach to an investigation of the pluralization process in Slovenia. We can take into account these two weak regularities, concerning the spread of allocated funds and the spread of human resources across and within health care regions. Then we can study the pluralization process on one region only (i.e. in Ljubljana) and will be able to generalize the findings - with some caution - for the whole territory.

Survey in Ljubljana in 1998: Methodology and sample design

The methodology for the sample survey in Ljubljana was developed with the idea of comparing the two kinds of physician working at the primary health care level in plural settings: physicians working in public health care institutions and physicians working in private practices. For the interview process we produced an elaborated questionnaire, entitled "Labour Market, Social Networks and Coalition Formation in the Public and Private Health Care Systems in Slovenia", with basically three rafts of merely closed questions, besides the usually posed demographic questions (Iglič *et al*. 1998). The first raft concerned labor market arrangements and some broader market aspects (competition, pharmaceutical supply, and prices). The second raft concerned behavioral and aspiration questions on the role of a physician within the whole medical system. The third raft of questions was designed to collect information on the personal social network of a physician.

There were about 760 physicians in public institutions and about 250 physicians in private practices in Ljubljana in 1997 (the ratio is about three to one). Because of the limited funds available for the survey we oriented ourselves only to the narrower area of the city of Ljubljana. Firstly, a list of all professional employees within the (primary) Health Care Center in Ljubljana was developed. Initially, it included 378 persons. After accommodation of the list for our analytical definition of primary health care and for location, we ended up with 264 eligible persons. Then a 45% simple random sample was drawn from the above-reduced list, yielding a list of 119 persons who worked in public institutions at the primary health care level in Ljubljana. Secondly, we also had at our disposal a list of all private physicians, working in the city of Ljubljana, which contained 141 persons (a copy of the register within the Ministry of Health). Two samples were then produced from two different sample frames (Table 5).

Fieldwork activities were carried out in Summer 1998 by an ad hoc established network of thirty interviewers, these mainly being the most interested students[6] from the Faculty of Social Sciences, University of Ljubljana (the privatization and pluralization of providers is an important study and research topic). All of them had a lot of previous experience with all kinds of public opinion research.

Table 5
Sample design and realization of samples for the survey among physicians working in public institutions and in private practices in primary health care in Ljubljana, Summer 1998

Physicians in public HC institutions	Statistics
initial population	378
sample frame (eligible for survey)	264
sample drawn (SRS 45%)	119
realization of sample	99
non-response rate (20/119)	17%
used in descriptive analysis	87
Physicians in private practices	
initial population	141
sample frame (eligible for survey)	115
sample drawn (100%)	115
realization of sample	85
non-response rate (20/119)	17%
used in descriptive analysis	75

How far can we generalize the results of the survey?

The sample design of the survey yielded two different quota samples. The first sample, the one on 'public' physicians, was drawn from the frame by a simple random choice and after the fieldwork activities performances resulted in a 17% non-response rate. The second sample, the one on 'private' physicians, was intended to be used on the total eligible population and resulted in a 26% non-response rate. The difference between initial and eligible population in the case of 'public' physicians was due to several factors: our restrictions in defining primary health care, our being limited to the city of Ljubljana, some non-professional appointments of physicians within Health Centers in Ljubljana, and, finally, the availability of respondents during the survey (specialization in foreign countries, etc.).

In the case of 'private' physicians the difference was mainly due to the availability of physicians for interviewing during the survey. For the first descriptive analysis, we

also excluded from the realized samples those private physicians with no concession (true-market services) and those public physicians who merely were not within our predefined boundaries of primary health care.

Before entering the analytical stage, we need explicitly to answer two main methodological questions concerning the general value of the obtained empirical data. First, do the *realized samples* allow for a fair presentation of the situation in primary health care in Ljubljana? And, second, how far is it possible to *generalize* the experiences from Ljubljana *to a larger area* such as Slovenia as a whole?

To answer part of the first question, we should rethink the sample issues. In the large health care region of Ljubljana there are about 750 physicians working in public institutions at the primary health care level (population). We first reduced this number to about one third (264) by concentrating only on the narrower area of the city of Ljubljana. Then we drew a simple random sample. Its realization was quite successful. We can say that the statistical inference from the realized sample to the target population was allowed freely, within its usual concerns of how reliably to interpret small and larger percentages. But there is one other issue: the internal composition of the interviewed physicians according to their specialization is, in the realized sample, slightly different in comparison to the target population (Table 6a). We can see that Ljubljana, with respect to medical specialization, is an exception in comparison with Slovenia and also with the wider Ljubljana region. While in Slovenia, at the primary health care level, the composition is about 22% general practitioners and about half specialists, in the City of Ljubljana there are many more general practitioners and less specialists.

Table 6a
Comparison of physicians employed in public institutions at the primary health care level in Slovenia, larger population (Ljubljana region), target population (city of Ljubljana), and surveyed sample (different data sources) (in %)

	Slovenia	Ljubljana region	City of Ljubljana	Sample drawn	Sample realized
General Practitioners	22	23	36	37	33
Dentists	31	32	40	40	38
Other Specialists	47	45	24	23	29
TOTAL (%)	100	100	100	100	100

According to the realized sample we follow quite accurately the share of dentists in the city of Ljubljana, but overestimate the share of specialists and underestimate the share of general practitioners. So, if we take this composition as a baseline for the generality of our findings, the results from our sample of 'public' physicians could hardly be generalized above the samples' limits. For larger areas they can be used, at best, as an indication.

According to the realized sample on 'private' physicians we could hardly fail in the comparison with the target population, as we took into account for the survey the whole target population, i.e., all physicians with a private practice in the city of Ljubljana (Table 6b). Some minor differences are, however, presented, but are not crucial either for statistical inference or for the generalization of results.

Table 6b
Comparison of physicians employed in private practices at the primary health care level in Slovenia, larger population (Ljubljana region), target population (city of Ljubljana), and surveyed sample (different data sources) (in %)

	Slovenia	Ljubljana region	City of Ljubljana	Sample drawn	Sample realized
General Practitioners	5	8	23	23	28
Dentists	66	67	63	63	57
Other Specialists	29	25	14	14	15
TOTAL	100	100	100	100	100

On the assumption that the official data on human resources in private practices (Table 3) underestimates the share of general practitioners, and thus consequently overestimates the share of specialists at the primary health care level, we can state the following: our sample on 'private' physicians could be used for both kinds of generalization of empirical finding: for the Ljubljana region and, as said before, even for Slovenia as a whole.

The last note in this introductory article concerns the organisational aspect of primary medical care in Ljubljana. It is widely known that, from a managerial point of view, the public healthcare delivery system in Ljubljana is a very concentrated one: there is only one, rather huge Ljubljana Healthcare Centre, further divided into minor local subunits. It might be that some additional problems, concerning human relations and bureaucratic behaviour within public healthcare centres and hospitals, also arise from this specific source. Such organisational features are not so salient within other, smaller regions of Slovenia. Hence, they are not a very strong 'push' factor in making physicians move into private practice. We could not address these differential aspects in our study, as we were concentrating solely on Ljubljana. However, it is worth bearing this in mind when making generalisations from Ljubljana into the broader region.

NOTES

1. The license for a private practice is really a public concession, given to a candidate by a local governmental unit responsible for the development of social services. Such a concession includes, in addition to general terms, an exact percentage of the allocated basic medical team assigned to a candidate and thus paid from public funds. During the application procedure some other judgements are also necessary. First, the permission of the physician's employer to leave (without hindrance) a public institution is required. Non-compulsory, though quite frequently attached, is an opinion of the Medical Chamber to support a candidate. The municipalities concerned have no strong influence on the final decision. Also the national Health Insurance Institute of Slovenia (HIIS), which is in charge of financing the limited development of the public network of providers, must always estimate whether or not there is room free for the new candidate. The latter exchange of opinions is important, as the top selection criteria is "not to extend the public network of providers within a particular area beyond the limits set by available funds" (Annual Report of the HIIS 1997: 18).
2. Besides private practices, some other elements of the professional plural self-regulation of medical services appeared: private insurance schemes, private hospitals, outpatient practice and free choice patient practice. It is important to emphasize that elements of a private insurance system (voluntary insurance) and of a private medical practice appeared at about the same time. However, these market elements were not so numerous and strong, as, for example, was the case in the Czech Republic; more on this subject can be found in J. Nemec (1997): Case Study: Example of Market and Government Failure in Health Care. In: J. Nemec & G. Wright (Eds.): Public Finance: Theory and Practice in Central European Transition, pp. 90-97. Bratislava, NISPAcee.
3. It is not easy to follow the process of pluralization of providers through official data. The information systems, implemented within the Institute for Public Health of the Republic of Slovenia, responsible for health statistics, adapt rather slowly to changes in the complex health care system. So, for example, it uses a nine-region division of territory, while the National Health Insurance Institute uses ten-region division of territory. For our purposes we thus had to recalculate the official data to obtain the desired figures.
4. This result in a way is also due to the different years of the two series, due to insufficient official data on private physicians, and due to different statistical sources of data.
5. Formula: $k = 1 - (6* d^2)/n(n^2 -1)$, where $d = r_i - r_j$ (i ... for first series, and j ... for second series).
6. After finishing their work, each of them also wrote a short diary with her/his impressions, observations and conclusions, anonymous in details, but concerning various general or more specific remarks on the process of pluralization and privatization of social services in Slovenia.

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