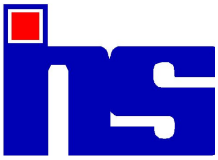
Comparative study and typology of health systems in OECD countries.

Dr. Prasanta Mahapatra

Working Paper - WP 22/1998 (1-13)



THE INSTITUTE OF HEALTH SYSTEMS

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Prasanta Mahapatra[1]

The aspiration for better health status is universal. The WHO health for all (HFA) goal shared by all countries of the world is a symbolic statement of this universal aspiration. Both financially poor and rich countries are striving to improve the health status of their populations. Poor countries, with stagnating financial performance, are looking for cost-effective health interventions to make the most out of their limited resources. Those who are experiencing improvement in their financial status want to develop their health care system in a sustainable manner and hence are looking for experiences from the financially developed countries for sustainable models. The financially rich countries want to contain the ever rising health care costs. International financial institutions like the IMF and the World Bank have realised that loans to developing countries with the usual structural economic change requirements can not be sustained for long without safety net packages for poor and health sector investments. Hence the so called epidemic of "health sector reform" is understandable. Countries in the process of developing their health systems or wanting to reform their health sector generally look for experiences from other nations. Unfortunately this translates into piecemeal adoption of ideas from different sources without much thought about how they would interact with each other in a single health system. Such reform efforts have to be lucky to be sustainable. Instead it is important to appreciate the prevalent health systems and understand the resources they spend and sacrifices they make to achieve their respective health goals. The organisation for economic co-operation and development (OECD) countries offer a long term experience with a variety of health systems. All OECD countries have achieved fairly impressive health status as measured by life expectancy at birth. By recent measures of burden of disease, the incidence burden of disease as measured by disability adjusted life years (DALYs) is estimated to be lowest in the established market economy (EME) region, most of which constitute the OECD countries (Murray et al. 1994). It will then be useful to construct a typology of the OECD health systems for a more holistic understanding of the nature of choices available for health sector reform.

Following Field (1989) health system is defined as the totality of formal efforts, commitments, personnel, institutions and economic resources that a nation-state or appropriate political unit within a country, earmarks to prevention and / or treatment of illness, premature mortality and other health related problems. It is important to recognise three aspects of a health system implied by the definition. Economic resources, i.e. financial allocation to health sector can be viewed as an input used by the health institutions, personnel and programs to produce services that contribute to health outputs. Every health system uses some economic resources and realises some level of health status. Let us view the part of the health system that transforms the economic resources to outputs that contribute to the final health status as the body of the health system. Characterisation of the body of the health system is then primarily a descriptive exercise. Relating the descriptive characteristics to input and out puts is an analytical step. The dimensions that constitute the structural basis of a typology for purposes of health policy analysis ought to discriminate the ones that represent

[1] Honorary President, Institute of Health Systems, Hyderabad. This paper was originally written to fulfil a course requirement in Harvard University. The course (HP2001) on Organisational Analysis and Health Care, was taught by Paul Cleary. Prof. Cleary’s guidance is gratefully acknowledged.

the inputs and outputs of the health system from those that describe the system itself. Such a distinction is important if we recognise that the nature of the system itself does indeed play a role in cost-effectiveness of health care delivery. For example the share of GDP per capita spent on health and life expectancy at birth represent respectively the size of inputs and health outcomes. Where as how much of the health sector share of GDP is mobilised and or spent through private Vs public or non profit sector would describe, from one perspective, the way the health system is organised.

Tiryakian (1968) provides a comprehensive treatment of typology as an analytical tool in social sciences. A brief summary of the concept of typology culled out from this source follows. Expressions within quotes are verbatim extracts from the same source. Systematic classification using explicit criteria is one way of describing our state of knowledge about some phenomenon (in this case organisational structure of health systems). "A typo logical classification is one in which the fundamental categories of ordering the types are inductively arrived at rather than formally deduced a priori." Typology may be viewed as a any classificatory system used in qualitative analysis and should satisfy the following three criteria.

1. Comprehensiveness and mutual exclusivity: "Each and every member of the population (here the health systems) studied may be classified in one and only one of the major types."
2. Explicitly stated dimensions: "The dimensions which are differentiated into types must be explicitly stated."
3. "The dimensions must be of central importance for purposes of research and analysis."

In addition "a good typo logical classification would include the criterion of fruitfulness (i.e. heuristic significance in facilitating the discovery of new empirical entities) and the criterion of parsimony (the fewer meaningful or significant major types possible to cover the largest number of observations)".

In order to enable evaluation of alternative organisational models for health care, Donabedian (1972) described various aspects or dimensions relevant for comparative organisational analysis (table-1).

Table-1 Donabedian's dimensions for organisational analysis of personal health care services sector.

Dimension	Illustrative co-ordinates	Explanatory remarks
Formalisation and bureaucratisation	Unorganised, partially formally organised, formally organised.	Degree to which health service providers (say physician practices) are organised and bureaucratised.
Physician-organisation relations	Fully independent, independent with obligatory duties, contractual.	When physicians do not own organizations (say hospitals) they may stand in one of several types of relationship to the organisation.
Consumer-organisation relations	Unorganised, organised purchase, representation, dominance or control.	Structural relationship of consumers to organisation.
Organization of access	Temporal, spatial and socio organisational characteristics.	

Dimension	Illustrative co-ordinates	Explanatory remarks
Organization payment and financing	Sources of funds, method of paying health services organisation, method of paying physicians.	
Organization of the production process	Primary care model, multispeciality care model, mixed model.	The structural interface that links clients and therapists and delivers or generates care.
Organisational locus	Physician offices, hospitals, medical schools, medical societies and health department.	The nucleus institution around which care is organised.
Organising levels, sites of care and regional organisation	Specialisation of areas within single location and circulation of patients according to severity, hierarchical location of referral services.	Arrangements for referral and transfer of information.

[1] Source: Compiled from Donabedian (1972).

Notice that some of the above "dimensions" are not amenable to clearly identifiable co-ordinate points which is required for development of a typology. Since Donabedian was aiming to provide a theoretical exposition of various aspects of organisational structure in order to discuss merits of alternative proposals for development of the US health care system, there wasn't a need to pin these dimensions down to specific co-ordinates. The importance of this contribution is that almost all aspects of organisational analysis has been listed, thus providing a reference to appreciate completeness of specific efforts in comparative study of health systems.

Culyer Maynard and Williams (1981) described two prototypical health systems and labelled them as system X (their examples in 1981 were USA, West Germany, France) and system Y (e.g. UK, Scandinavia). System X consists of markets in which access to health care is on the basis of willingness and ability to pay. Revenue for health system is raised through private insurance. Ownership of providers is mainly private. State control over budgets and resource distribution is minimal. System Y consists of publicly owned (hospitals) or otherwise but tax financed providers (general practitioners under contractual arrangements with NHS). Access is based on assessment, largely by the medical profession, of need. Central control of budget and direction of physical resources is allowed. Both systems offer choice of practitioners to patients and clinical freedom to doctors. Each system may have enclaves of the other system to take care of specific requirements. For example the publicly financed MEDICAID and MEDICARE in USA to take care of poor and elderly and private insurance bought by a small minority of rich in UK. Although these authors included Germany and France along with USA under system X the primary objective behind their analysis was to contrast the NHS system of UK with the American health system. Closer examination of the German and French health system offers many differences from the system in the United States.

Field (1989) developed a typology (table-2) that allowed more than two types.

Table-2 Field's typology of health systems.

Dimension	Type- 1 Emergent	Type-2 Pluralistic	Type-3 Insurance / Social security	Type 4 National health service	Type 5 Socialised
General definition	Health care as item of personal consumption.	Health care as predominantly consumer good or service.	Health care as an insured / guaranteed consumer good or service.	Health care as a state supported consumer good or service.	Health care a s a state provided public service.
Position of the physician.	Solo entrepreneur	Solo entrepreneur and member of variety of groups / organizations.	Solo entrepreneur and member of medical organizations.	Solo entrepreneur and member of medical organizations.	State employee and member of medical organizations.
Role of professional associations.	Powerful	Very strong	Strong	Fairly strong	Weak or non existent.
Ownership of facilities.	Private	Private and public	Private and public	Mostly public	Entirely public
Payments	Direct	Direct and indirect	Mostly indirect	Indirect	Entirely indirect
Role of the polity	Minimal	Residual / indirect	Central / indirect	Central / indirect	Total
Examples		Switzerland, USA	Canada, Japan, France, New Zealand, Spain,.	UK	USSR

[1] Source: Field Mark G.; Success and crisis in national health systems: A comprehensive approach; Routledge, New York, 1989, p7.

Roemer (1977) identified five "principal types" of health systems in the world, based on their predominant characteristics. These five types were; (a) free enterprise, (b) welfare state, (b) underdeveloped, (d) transitional, and (e) socialist. Evidently this typology mixed up two dimensions i.e. degree of market involvement and level of economic development. Subsequently (Roemer, 1991) remedied this by using a two dimensional matrix to characterise national health systems during the 1980s based on the degree of market involvement in health system (the first dimension) and the level of economic development (the second dimension). Classification by economic levels not very informative since we do not usually seek a causal linkage between characteristic of health system and level of economic development. In the reverse direction level of economic development would impose some sort of a limit on the quantum of allocation to health sector. We do not know what this limit exactly is, but clearly the gross national product (GNP) of a country gets allocated among many other sectors and hence the size of GNP would limit in some way the quantum of resources allocated to health sector. Characteristic of the health system would then influence the allocative process itself and thereby determine how much of the notional

limit is used up by the health sector. Policy analysts are usually concerned about the interplay of organisational characteristics of a health system and its impact on allocation of resources to health sector, for similar levels of aggregate health outcomes. Thus the market involvement (the flip side of which is government / public sector involvement) dimension of Roemer's typology is more interesting. I have extracted the market involvement dimension of Roemer's typology in table-3 and have included all of his examples without showing the stratification by economic level.

Table-3 Roemer's typology of health systems in 1980s on the basis of degree of market involvement.

Type	Description	Examples
Entrepreneurial & permissive	Typically more than half of health expenditure is from individual and family outlays. Private medical practice is strong and a substantial proportion of hospital beds are under private ownership.	USA, Thailand, Philippines, South Africa, Ghana, Bangladesh, Nepal.
Welfare oriented	Financing of health care is collectivised without much disturbance of conventional patterns of health service delivery.	West Germany, Canada, Japan, Brazil, Egypt, Malaysia, India, Burma, Libya, Gabon.
Universal & comprehensive	Similar to welfare oriented system with complete or nearly complete coverage of the population.	UK, New Zealand, Norway, Israel, Nicaragua, Sri Lanka, Tanzania, Kuwait, Saudi Arabia.
Socialist & centrally planned.	Centralised planning, state financing and complete public ownership of providers.	Soviet Union, Czechoslovakia, Cuba, North Korea, China, Vietnam.

[1] Source: Roemer, 1991.

Hoffmeyer and McCarthy (1994) classified health care systems of 12 countries covered by the national economic research association (NERA) study into three types based on the financing mechanisms (table-4).

Table-4 NERA study classification of 12 industrialised country health systems based on predominant financing mechanisms.

Type	Description	Examples
Tax funded.	These are systems which raise health care funds through general or earmarked payroll taxes. Funds are collected by a central authority which transfers these in a variety of ways to regional authorities.	Canada, Italy, New Zealand, Spain, Sweden and the UK.
Social insurance	Working people are mandated to contribute to social insurance (sickness) funds. These funds are not for profit institutions. Competition among sickness funds may exist. Sickness funds pay physicians and hospitals via negotiated contracts.	France, Germany, Japan and the Netherlands.

Voluntary insurance	Health insurance is not mandatory. Tax funding is not universal. Finances are raised by private insurance companies which then reimburse providers.	United States and Switzerland.

Although the classification is based only on the financing dimension, their description of individual health systems included additional dimensions such as; reimbursement of providers, particularly reimbursement methods for primary care (general practitioner services) and for hospital services. Jeong and Gunji (1994) classify health systems in to the three types similar the above and call them tax based (TB type), contribution based (CB type) and free market base (FM type).

The organisation for economic co-operation and development (OECD) study of health sector reform in seven countries (OECD, 1992) sought to develop a typology of sub systems based on three dimensions such as; sources of finance, provider payment mechanisms and type of regulatory measures. They began with two dimensions i.e. source of finance and provider payment methods. Two major sources of finance i.e. voluntary and compulsory are identified. Four different methods of paying providers are delineated. These are; a) out of pocket, b) out of pocket payments covered by voluntary insurance, c) contracting of services by third party payors and d) direct provision by insurer. Combining the two dimensions (i.e. sources of funds and method of payment) results in eight possible types. One of them i.e. compulsory out of pocket, being infeasible is excluded. OECD nomenclature for the remaining seven types and a short description of each is in table-5. Note that the essential difference between reimbursement and contracting models is the degree of choice available to consumers in selection of physician or hospital. In the reimbursement model choice is unlimited. In case of contract choice is limited to those providers who have a subsisting contract with insurer for coverage of its clients.

Table-5 OECD typology of sub systems based on sources of finance, provider payment mechanisms.

Type	Description
Voluntary out of pocket	Earliest and simplest form of private health care market without insurance but with direct out of pocket fee for service transactions between consumers and providers.
Voluntary reimbursement	Voluntary insurance with reimbursement. Availability of private indemnity insurance which involve reimbursement of medical bills in full or in part to those who can buy such coverage.
Public reimbursement	Compulsory insurance with reimbursement. Compulsory risk pooling, income related contributions and subsidisation of contributions for the poor. Reimbursement, in full or part, of medical expenses incurred by patients. No direct connection between compulsory insurance (sickness) funds and providers.
Voluntary contract	Voluntary insurance with insurer-provider contracts. Eg. Friendly societies, non staff model health maintenance organisations (HMO) like independent practice associations (IPA) and preferred provider organisations (PPO).
Public contract	Compulsory insurance with insurer-provider contract

Voluntary integrated	Eg. staff model HMOs.
Public integrated	Compulsory insurance with integration between insurance and provision

[1] Source: Compiled from OECD 1992; The reform of health care. A comparative analysis of seven OECD countries, chapter -2.

It is pertinent to note that the study lists the above as a typology of "sub systems of sources of finance and methods of paying providers". An obvious motivation appears to be the fact that none of the health system completely conforms to any one of these. Rather each national health system is a blend of more than one subs system. So a typology of health systems based on these two dimensions would be based on the prevalence of specific types in different parts of the health system and the extent of coverage accounted for by the respective parts. Hence the study looked for existence of each sub system and also identified the dominant one among them based on an appreciation of the extent of coverage factor. The study initially covered seven countries (OECD, 1992) followed by the rest 17 countries (OECD, 1994). Table-5 summarises the information for the seven countries.

Table-6 Description of 7 OECD country health systems according to prevalence of OECD health subsystems.

Country	Description		
	Dominant	Sizeable	Small
Belgium	Public contract	Public reimbursement	
France	Public contract	Public reimbursement + Public integrated	Voluntary insurance reimbursement.
Germany	Public contracts	Voluntary insurance and reimbursement.	
Ireland	Public contract	Public integrated	Voluntary insurance
Netherlands	Public contract	Voluntary insurance and reimbursement	
Spain	Public integrated	Public contract	
U.K.	Public contract		

[1] Source: Compiled from OECD 1992; The reform of health care. A comparative analysis of seven OECD countries, chapter -2

As regards the third dimension of government regulation, the study views regulatory activities to be in either of the following two categories.

1. Regulations promoting markets and self regulation. For example self regulation, competition, choice by consumers.
2. "Control and command" type regulations. For example specifying coverage of insurance policies, regulating membership and premiums, controlling quantity, quality and price of services, fixing of wages and planning capacity.

In practice however, the study notes, the seven systems covered by them contain a mixture of both types of regulations. Consequently they did not include regulatory characteristics into their system of classification.

Abel Smith (1992) in a cross national study of European community health systems described the principal methods of providing services in various countries. While he used direct employment (same as the integrated model of OECD described earlier) versus indirect contracting to describe the principal methods of provision. In addition he added a column to describe the method of payment to primary care doctors. The same approach was followed by the OECD in presentation of its 17 country study (OECD, 1994). The important point that comes out of this is that general practitioner services (synonymously: primary level personal health services, ambulatory care, family practitioner services) and hospital services stand out as two distinct organisational entities. Independent practice by general practitioners generally means competition among physicians and availability of choice of physicians in the hands of consumers. Many countries appear to be reconciling the pulls and counter pulls of the consumers need for choice, benefits of competition and the need for cost containment by regulation of the hospital sector. Hence it is useful to treat them as separate dimensions for purposes of classification of health systems.

I. Choice of dimensions:

Five dimensions are chosen to describe different aspects of health systems (table-6). Financing and hospital bed ownership each have four sub classes (co-ordinates), specialist services has three, GP services and regime two each. Thus altogether they can give rise to a maximum of 192 types of health systems. In practice health systems are likely to cluster around a few types.

Table-6 Choice of dimensions and their co-ordinates for classification of health systems.

Dimension	Co-ordinates	Definition
Financing	General tax	General tax revenue accounts for more than 50% of total health expenditure.
	Sick fund	Sick fund, compulsory insurance, earmarked tax or social insurance premia accounts for more than 50% of total health expenditure.
	Private	Private insurance premia and out of pocket payments account for more than 50% of total health expenditure.
	Mixed	None of the above sources of financing account for more than 50% of total health expenditure.
Hospital bed ownership	Public	More than 50% of hospital beds are directly owned by federal, state or local governments.
	Non profit	More than 50% of hospital beds are owned by self governing hospital trusts, voluntary non profit organisations, charitable trusts etc.
	Private	More than 50% of hospital beds are under proprietary or for profit corporate ownership.
	Mixed	None of the above ownership types account for more than 50% of hospital beds.

Dimension	Co-ordinates	Definition
General practitioner services.	Independent	General practitioner services are paid for on the basis of fee for service or capitation.
	Integrated.	General practitioner services are rendered by salaried doctors.
Specialist services	Integrated	Specialist service included in hospital service charges. Specialists are salaried employees of hospitals.
	Partly integrated	Specialist consultation service is fee based but within hospital services is integrated in hospital service charges. Usually specialists are salaried employees with private practice privileges.
	Privilege based.	Specialists work in hospitals on the basis of admitting privileges and charge fees separately.
Extent of regulation	Total	The regulatory regime extends to all of the following areas directly or indirectly. (i) Drug formulation, (ii) pharmaceutical prices, (iii) essential drug list, (iv) hospital capacity, (v) hospital budgets, (vi) insurance plans, (vii) doctors fees, (viii) technology assessment.
	Partial	The regulatory regime extends to at least half of all areas described above.

II. Data on health systems

The two OECD studies (OECD, 1992 and OECD 1994) provide description of the health sector reform activities in all 24 OECD countries. Discussions about health sector reform is accompanied by a descriptive note about the health system. Hence these two publications formed the primary and official source of OECD health systems. In addition I used the following sources to learn about the health systems and to cull out the information on various dimensions identified by me.

1. NERA study (two volumes) on twelve OECD countries (Hoffmeyer and McCarthy, 1994).
2. Roemer's (1991) book on national health system of the world.
3. Fall 1991 issue of Health Affairs which was specially devoted to health systems reform.
4. Raffel's (1984) book on comparative health systems to a limited extent.

However clear cut data on the five dimensions was not available from these sources for all countries. Hence the classification scheme was restricted to the first three dimensions i.e. financing, hospital bed ownership and GP services. Data pertaining to the year 1990 or an adjacent year was collected. Classification was done following the definitions in table-6. Country wise data on the three dimensions is furnished in annexure-1.

III. Results

Table-7 shows a typology of OECD country health systems using the three dimensions of financing, hospital bed ownership and GP services. Maximum number of health systems (six) are general tax financed with public ownership of most hospitals and independent GPs. Another four countries have mixed financing systems with public ownership of most hospitals and independent GPs. There are altogether 11 types against the maximum of 32 possible types. This will limit the maximum possible types under the six dimensional classification to 66. Strangely the American health system is typed as private financed with non profit ownership of hospitals. It is surprising to find that more than 50% hospital beds in USA are owned by non profit organizations.

Table-7 A typology of OECD health systems based on three dimensions i.e. financing, hospital bed ownership and general practitioner services.

1	General tax, Mixed, Independent	Denmark
2	General tax, Non Profit, Independent	Canada
3	General tax, Public, Independent	Australia
3	General tax, Public, Independent	Ireland
		New Zealand
		Spain
		Austria
		Norway
		UK
4	General tax, Public, Integrated	Iceland
4	General tax, Public, Integrated	Portugal
		Sweden
		Finland
5	Mixed, Mixed, Independent	Switzerland
6	Mixed, Non Profit, Independent	Belgium
7	Mixed, Public, Independent	Turkey
		Italy
		Luxembourg
		Greece
8	Private, Non Profit, Independent	USA
9	Sick fund, Mixed, Independent	Germany
10	Sick fund, Private, Independent	Japan
		The Netherlands
11	Sick fund, Public, Independent	France

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Annexure-1

Country data for classification of health systems.

Countries	Dimension									
	Financing				Hospital ownership			GP payment		
	Out of pocket	Pvt. Insurance	Social Insurance	Genl tax	Public	Non profit	Private	Fee	Capitation	Salary
Australia	15%	25%	0%	60%	75%			1	0	0
Austria				70%	69%	17%	14%	1	0	0
Belgium	12%	3%	46%	39%	39%	61%		1	0	0
Canada	0%	28%	1%	71%	33%	65%	2%	1	0	0
Denmark	14%	3%	0%	83%				0	1	0
Finland	16%	4%	11%	69%	100%			0	0	1
France	12%	5%	82%	1%	65%	0%	35%	1	0	0
Germany	7%	6%	73%	14%	33%	33%	33%	1	0	0
Greece	42%		32%	26%	70%			0	0	1
Iceland	12%	0%	0%	88%	100%	0%	0%	0	0	1
Ireland	13%	9%	0%	78%	74%			0	1	0
Italy	15%	7%	37%	41%	84%	0%	16%	0	1	0
Japan	12%	0%	56%	32%	5%	0%	95%	1	0	0
Luxembourg	10%	0%	50%	40%	65%	16%	19%	1	0	0
New Zealand	14%	4%	4%	78%	75%	0%	25%	1	0	0
Norway	3%	0%	0%	97%	99%	0%	1%	0	0	1
Portugal	38%	0%	0%	62%	78%			0	0	1
Spain	23%		23%	54%	68%	16%	16%	0	1	0
Sweden	10%	0%	0%	90%	100%			0	0	1
Switzerland	29%		37%	34%	46%	32%	22%	1	0	0
Netherlands	11%	16%	60%	14%	15%	0%	85%	0	1	0
Turkey	33%	2%	22%	43%	95%			1	0	0
UK	6%	0%	0%	94%	96%	0%	4%	0	1	0
USA	20%	33%	5%	42%	27%	59%	14%	1	0	0

[1] In Denmark practitioners are paid partly on a capitation basis for class-1 protected persons who account for 92% of population (Roemer, 1991, p211). Abel-Smith (1992, pp xi) estimates that capitation accounts for 75% of payments for GP services and the rest is by fee for service.

[1] Abel-Smith (1992 pp xi) describes the GP services in Greece as salary based. Gerdtham et al (1992, appendix-1) describe it as fee for service. In Greece two large schemes OGA for rural areas and IKA for urban wage earners, salaried employees and self employed. OGA covers about 40% population, funded by general tax . Services are delivered by health centres with salaried doctors. IKA covers about 44% of population and is funded by contributions and general tax. Services are delivered by ply clinics staffed by salaried part time doctors. Roemer (1991, pp213-215) describes that the Greek health system after formation of the socialist government in 1981, coverage of public system has increased and non government health care facilities have gradually transferred ownership to public sector which is salary based. The public hospitals also provide ambulatory services. In urban areas private consultation outside of the formal sector, is very common. So a salary based formal sector is in fact supplemented by a fee for service private sector in the urban areas. I have followed Abel-Smiths classification, for the national system as a whole considering the totally salary based system in rural areas and salary based formal sector in the urban areas.

[1] The general medical service (GMS) which covers about 40% population pays GPs by capitation.

[1] Gerdtham et al classify New Zealand as not fee for service based. Roemer (1991, pp207) describes that general practitioners are paid by fee for service.

[1] Gerdtham et al classify Portugal under fee for service. Abel-Smith classifies it as salary based.