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Planning and market regulation: strengths, weaknesses and interactions in the provision of less inequitable and better quality health care

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Planning and market regulation: strengths, weaknesses and interactions in the provision of less inequitable and better quality health care

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Abstract

This paper argues that planned health care provision and market regulation play distinct roles in relation to the effective provision of equitable health care. Governmental planned provision has as a core objective ensuring that the health system is redistributive and that the poor have access to competent care. Market regulation has as its central objective the shaping of the role and behaviour of the private sector within the health system. Management of the health system as a whole, which is a governmental responsibility, therefore requires the integration of planning and regulation in a manner appropriate to each particular context.

All health systems are 'mixed', involving both private and public initiative. This paper defines a concept of health care commercialisation, and shows that, based on the data and sources available, higher levels of commercialisation are not associated with better health outcomes. Some, but not all of this finding can be explained by the association of higher commercialisation with lower average incomes. Case-based exploration of the reasons for the finding suggests that low-income unregulated fee-for-service commercialisation is particularly damaging to health outcomes, and solutions are urgently required. At higher incomes, where patterns of commercialisation are driven by large private firms (providers and insurers) seeking to segment the market and serve its high income segment, the regulatory challenge is to shape the role of these firms in a manner that allows sustained redistribution.

In the case of publicly planned provision, the evidence surveyed shows that countries that spend more via government – directly or through social health insurance mechanisms – have generally better outcomes, and that those who ally higher government spending to a universalist commitment to open access and to very low or no charges at the point of use, do particularly well, achieving high levels of access at lower incomes, containing catastrophic expenditures, and (perhaps counter-intuitively) ensuring that the extensive private provision in these systems plays a complementary role in serving the better off. This is the converse of the finding for systems where the public sector has largely collapsed or has become strongly fee-based : here the poorest citizens struggle disproportionately to gain access to private providers and catastrophic payments are a serious source of impoverishment.

The paper illustrates what is meant by the integration of planned provision and market regulation with reference to four contexts. It argues:

- for planning public health care to operate as 'beneficial competition' for private providers in low income health markets;
- that sustaining public benefit culture in the public and non-governmental sectors is key to promoting planning-regulatory synergy, and that this requires constraining public sector marketisation;
- that the regulation of private providers and constraint of private insurers can be done effectively through the extension of social health insurance, but the technical demands are considerable and the political process of gaining consensus to support compulsion is essential;
- and that integrating 'classical' regulation with planning can be highly successful in shaping access to essential drugs and other essential commercial inputs to the health system.

The paper concludes that in no case can the need for competent public leadership and management of the system be avoided. Where it cannot be established, it is however possible for large non-governmental organisations to play a quasi-governmental role in planned provision.

1. Introduction: planning and regulation for equity in mixed health systems

Terms of reference

There are two broad means by which Ministries of Health and Health Service managers can pursue the objectives of strengthening health systems while moving them in the direction of less inequitable operation, in order to help to meet the Millennium Development Goals and to reduce the ill health-generated aspects of poverty (Singh in press; Wagstaff 2002). They can regulate health care markets, with the aim of influencing their behaviour, or they can directly plan provision. The terms of reference for this paper were to compare the strengths and weaknesses of regulated market *versus* publicly planned provision in the attainment of more equitable health care in developing country contexts, and to draw some policy conclusions. The focus of the paper is therefore on the promotion of equity and on inclusion of those on the lowest incomes.

The central argument of the paperⁱ is that planning and market regulation are not in practice alternatives. In the current context of mixed health systems, planning and regulation have to be used in ways that mutually reinforce each other in order to achieve health system objectives. The integration of regulatory strategy and planning in context requires in turn a close understanding of the economic organisation, culture and behaviour of specific health systems. This paper aims to contribute:

- i. An examination of the 'mixed' nature of current health systems, and the differentiated planning and regulatory challenges they pose;
- ii. Evidence on the scope and experiences of 'regulation' and 'planning' in these differentiated contexts;
- iii. Illustrative analysis of ways in which the two types of policy tools can interact in influencing health system behaviour over time.

Section 2 briefly states the paper's sources and methods. Sections 3 and 4 examine and classify some of the regulatory and planning challenges posed by the current operation of health care markets and of government-planned health care; I also briefly address in Section 4 the 'planning' role of non-governmental organisations. Section 5 examines the interactions of regulation and planning. This introductory section sets out the definitions of 'regulation' and 'planning' that shape (and limit the scope of) the paper, and some reasons for the approach chosen. Concepts of 'equity' are defined more precisely in Section 4, in the discussion of redistribution.

'Regulation' and 'planning' in health policy

The definitional distinction between 'regulation' and 'planning' is a politicised matter, so it is essential to clarify the terms as used here. The distinction has become a terrain for sharp political and policy debate as a result of the rise and widespread promotion of the 'new public management' (NPM) framework for social sector reform (Mackintosh 1995, Mills et al 2001). This framework proposes government withdrawal from provision, and the institutionalisation of a split between 'provision' and 'purchasing'. The NPM literature therefore advocates a shift in public sector management style from giving instructions to providers to creating incentives to shape decentralised decision making by autonomous providers. As a result NPM advocates the extension of regulatory mechanisms such as standard-setting to include public sector providers competing with private providers for contracts (Saltman 2006). This leads health policy analysts to create conceptual formulations such as 'regulating incentives in planned markets' (Saltman 2006: 1682).

The literature on health planning is influenced by this framework. Green (1999), who continues to use the rather old fashionedⁱⁱ concept of 'planning', has extended it to *include* regulatory activities (1999:3). He defines planning as the effective use of resources to attain objectives, and distinguishes planning of activities from planning of resource allocation. The UK National Health Service similarly uses the concept of a 'planning framework' to refer to policy on allocation, commissioning and rate settingⁱⁱⁱ.

I have avoided this definitional overlap here for two interrelated reasons. One is for the purposes of clarity. Much private health care in developing countries is neither purchased by governments or social insurance schemes, nor effectively regulated. Public provision of health care, while increasingly decentralised, is not widely 'reformed' into arms-length contractual modes. So evidence is lacking on the implications of centrally managed internal markets in developing country contexts. I employ here definitions of regulation and planning that can be used for evidenced-based discussion in these contexts. Second, the paper does not advocate the creation of centrally managed contractual purchase as the way forward, except in the (demanding) context of universalised social insurance with largely commercial providers and strong central control. Rather the paper advocates a clear distinction between the tasks of market regulation and planning of provision, and their synergistic use in context.

The definitions chosen reflect these reasons:

- *Market regulation* : actions by government bodies and government-appointed regulatory agencies to influence the provision of health services and health insurance by private providers through market sale;
- *Planned provision* : actions by governments (and by non-governmental organisations operating at scale) to ensure, through direct tax-based, donor-funded or social insurance funding, the provision of health services to users.

The core distinction in this paper is therefore between a resource allocation function associated with ensuring delivery ('planning'), and rule setting and intervention aimed at influencing market-based provision ('regulation').

Market regulation: scope and analysis

Market regulation is debated in the literature:

- i. In terms of its *scope*: what activities are included?
- ii. In terms of its *processes*: how do we understand why regulators and regulated act as they do?

The scope of regulation, moving from a narrower to a wider definition, includes (with health care examples);

- i. Rule setting that governs the standards and procedures to be met by those selling goods and services on a market: for example, entry requirements such as professional licensing to practice; standards to be met by clinics or pharmacies seeking a licence to operate; procedures for registering medicines for legal sale within a country's borders;
- ii. Market management rules and activities that apply to all market actors, such as: competition policy rules, that restrict monopoly formation; price and fee ceilings; ceilings on numbers of providers in a local area; restrictions on the organisational forms for market actors, such as restrictions on for-profit health insurers or hospitals; establishment of legally enforceable consumer rights;
- iii. Market interventions that are selective, such as: accreditation of networks of drug shops or dispensaries; selective subsidy of public health activities by private providers; creation of public/private partnerships.

Category (i) activities are essential in all health systems, and failures of provision and enforcement, such as the Indian failure to enforce minimum quality standards for medicines on the private market (Chaudhuri 2005, in press) remove essential underpinnings of minimum standards of care in health systems. The debate on regulatory scope concerns the extent and nature of activities in categories (ii) and especially (iii).

The debate on scope is shaped by theories of regulatory process: that is by frameworks of understanding of how and why regulation operates as it does. A preference for a narrow scope, focused on category (i) is associated with the 'legal' or 'classical' view of regulation (Baldwin et al 1998). This view posits an analytical division between law and market behaviour: it is the role of market regulation to create (in that over-worked phrase) a 'level playing field' in the market, and then to allow market forces to operate. Regulatory rule making thus forms a *framework* for market operation, an infrastructure, and the problem of sustaining it is an *enforcement* problem. The regulator is understood as the independent representative of the public interest. Broader definitions of regulatory scope are associated with a

'socio-legal' approach to understanding regulation (Ayers and Braithwaite 1992, Baldwin et al 1998). This characterises regulation as an *interactive* (rather than one-way) process, between those regulating and those regulated, in which reciprocity and negotiation play an important role.

Both frameworks understand the regulator as setting rules that both constrain legal market activity and create incentives for particular forms of behaviour. Most analysis assumes self-interested behaviour by market participants in response to material incentives. They frequently employ the principal/agent model of economic analysis of institutional intervention; this treats the 'principal' as the (public-spirited but not necessarily all-knowing) principal, and the market players (self-interested, but also not necessarily fully informed) as responding to incentives embedded in the rules, and asks, how effective are the incentives in ensuring regulatory objectives are met?^{iv} In the more interactive approach, regulatory activity not only sets rules and creates incentives, but also responds to mutually reinforcing norms of behaviour within 'epistemic communities' that include the regulated, the experts and the regulators where knowledge and ideas are shared (Braithwaite and Drahos 2000). The regulator's independence from those regulated is limited and contested, and government is a market 'player' as well as an external rule-maker. This paper seeks to draw some lessons from this approach.

Planning provision: scope and analysis

'Planning' here means, by contrast, direct decision-making on provision through the allocation of resources under the control of (generally) a health ministry, a health service (which may be autonomous from government), or legislatively based social insurance fund(s). It may also be done by large scale non-governmental health providers (Section 4). It includes publicly funded health care delivered under contract by a variety of providers, but as noted above this is not the usual developing country approach. Planning thus encompasses the activities described in the current literature as 'delivery', 'purchasing', (public) 'providing' and budgetary allocation. It is the allocative function that particularly distinguishes planned provision from market regulation, and this includes the processes of involving communities in planning priorities for allocating funds at the local level^v. Indeed current health policy emphases on decentralisation, separation of commissioning and providing, and community participation have re-emphasised the importance of planning resource allocation.

The literature on planning in health has a technocratic strand that focuses on effective allocation of funds to meet given objectives, and on methods to ensure that the funds arrive at the designated services and are effectively spent. The policy tools are allocative formulae, budgetary controls, and monitoring and accountability mechanisms. The framework of thought is of top-down decision making, as in the 'basic needs' literature of the 1980s (Cornia et al 1987), sometimes characterised at the time as the 'count, cost and deliver' approach to basic services, and also in 'vertical' health programmes planned centrally and organised hierarchically.

A complementary literature on planning emphasises the importance of creating incentives for public sector providers, as in the literature on contracting for hospital services within the public sector (Mills et al 2001, McPake 1996; Nakamba et al 2002). The health sector reform literature frequently analyses funder/provider relationships within public services as *if* they were contractual – that is, as implicit contracts – even where no formal contracts exist (Tirole 1994). The characteristic model, again, is the 'principal/agent', where the funding body or central health service management is the 'principal'. Models proposing hospital autonomy, use of financial penalties for failure to meet targets, and increasing emphasis on 'payment by results' in the UK NHS, are examples of planning policies that draw on this approach. This paper takes the issue of incentives for the public sector providers seriously^{vi} while expressing caution about what Mills et al (2001) call 'bureaucratic commercialisation'. Rather, this paper emphasises a more interactive understanding of incentives within public services that draws on anthropological and sociological work on trust and professional cultures in health care (Mackintosh 1999).

2. Methods and scope of the paper

This paper is based on a selective literature review, and on the author's analysis of data drawn from publicly available data bases (fully referenced below) and a recently compiled data set^{vii}. Systematic searches of academic databases such as PubMed and IBIS were undertaken using key words including 'commercialisation', 'public', 'private', 'public/private mix', 'regulation', 'markets', 'market failure', 'planning' and 'health planning', and 'inequality', 'equity' and 'inequity'. The paper also draws on literature reviews for earlier work by the author referenced below. The aim is *not* a comprehensive review of market and planning in health: that is impossible in this compass. Instead, the aim is to develop an evidenced argument, based on a clearly stated framework, that goes in some aspects beyond existing published sources reviewed.

3. Commercialised health care: market dynamics and inequity of outcomes

3.1 The problem of unregulated markets

The search for evidence on the strengths and weaknesses of regulated markets is vitiated by the low level of effective regulation in existing developing country health markets. Case study evidence, examined in Section 3.3, repeatedly shows markets operating with little effective regulatory intervention. The literature contains more exhortation to improved market regulation than detailed studies of effective action (Kumaranayake 1997; Kumaranayake et al 2000). There are strong reasons furthermore to expect unregulated health markets to be problematic: users are poorly informed of their needs and unable to judge many aspects of quality ('asymmetry of information'); insurers are poorly informed of buyers' health status; the resultant perverse incentives to 'cheat' by over-charging and/or lowering quality, especially when associated with fee-for-service payment systems, generate cost escalation and exclusion even of people able to pay. To these well documented market failures (Hsiao 1995; Barr 1994, 1998) we may add the exclusion of those unable to pay, and the allocation of better care to those able to pay more as inherent features of unregulated markets.

Regulation can influence these unregulated health market characteristics. However, much of the evidence on the extent and impact of markets on access and outcomes, in the next sub-section, necessarily refers to *unregulated* markets. The evidence is relevant since effective regulation requires understanding of the existing market structure and behaviour of the health care markets and firms. Regulatory processes and requirements differ, for example, in markets tending to monopoly and those in competitive markets; in markets where the firms are large overseas multinationals, or local medium-sized firms, or small informalised enterprises. Unfortunately, the market information and analysis available to developing country health regulators is almost everywhere markedly insufficient. This section summarises some key elements of what we know about the extent and nature of commercialised health care provision in developing countries and its implications for equity, and indicates the type of information of which regulators need more.

Most developing country health sectors are dominated or extensively shaped by private provision and finance (Hanson and Berman 1998; Bennett et al 1997a, 2005; Leonard 2000; Söderlund et al 2003; Mackintosh and Koivusalo 2005). The literature contains a proliferation of terms; I use the following terms here with the following meanings.

- *Market*: the *process* of buying and selling units of health care, the inputs to health care, and units of health insurance, for prices specified in cash;
- *Private firms, private providers, the private sector*: firms that are owned by private individuals or by other private companies and operate for profit;
- *NGOs, non-governmental non-profit providers*: organisations established in law as not-for-profit, which provide health care goods and services;
- *Government provision, the public sector*: facilities, firms, activities and assets owned by the government;
- *Marketisation*: the shift from provision and input supply without fee payment to fee-for-service provision and cash payment for inputs;

- *Commoditisation*: the specification of items of service provision in a form capable of being sold on a market;
- *Privatisation*: the shift of an asset from government ownership into private hands;
- *Liberalisation*: removal of constraints on private provision of health care services and purchase and sale of inputs;
- *Commercialisation*: the combination of the last four processes, which are inter-linked and mutually reinforcing.

Health market regulators particularly need analysis of the pattern of commercialisation with which they are dealing (Section 3.3).

3.2 Health care commercialisation: is it associated with worse and/or more unequal health outcomes?

This section summarises cross-country evidence on the extent of commercialisation of health care, and its association with better or worse, and more or less unequal health outcomes. The analysis has a modest purpose: to demonstrate that there is a striking lack of evidence, in widely used comparative data sets, of positive associations between higher levels of commercialisation of health care finance and supply and better and/or more equal outcomes. Correlations do not imply causation. Nevertheless, given the considerable international policy pressure on countries' health planners to generate higher levels of private participation in health care, we might by now have expected to find some evidence-base for this policy direction in observed associations of greater commercialisation with better outcomes, holding other influences constant. In fact, what evidence there is tends to show negative associations with access and outcomes by income level.

The extent of commercialisation is measured here by the 'private/public mix' in finance and in provision (Bennett et al 1997a, 1997b)^{viii}. The higher the ratio, the more commercialised the health system in the sense that a higher proportion of finance or provision is in the private sector. This framework lends itself to cross-country comparison, and focuses attention on the fact that *all* health systems are a mix (Bloom and Standing 2001).

So on this basis how commercialised are the world's health systems? Most of the comparative cross-country data sets, from the WHO and World Bank^{ix}, measure the health financing mix and its association with income per head. 'Private' expenditure refers to health financing by private individuals and private firms, whether through individual fee-for-service payment (to providers in all sectors) or by private health insurers or through private direct (e.g. corporate) provision. 'Public' expenditure encompasses direct government spending to provide health care, government subsidies beyond the public sector, and *a/so* health financing through social insurance mechanisms. Three descriptive findings stand out.

First, private health expenditure is not the preferred form of health financing of the better off countries. Indeed, it is more an affliction of poor^x. Higher shares of private in total health spending are strongly and non-linearly associated, across countries, with lower average incomes per head (Appendix Figure 1)^{xi}. Among rich countries, only the United States, Singapore and Switzerland have private expenditure shares over 40 per cent (approximately the mean private share for all countries), while all but one of the countries with private health expenditure shares over 70 per cent have national incomes per head under \$1000 per year.

Second, the poorer a country, the more likely the population is to face the often crippling individual economic costs of out-of-pocket expenditure on health care (Appendix Figure 2)^{xii}. For any given health care intervention, out-of-pocket payment is the most regressive form of payment. Where out-of-pocket payment is the predominant means of access to health care across the social scale comparative studies of Asian and of Latin American countries show that the better off pay more relative to their incomes and hence receive more care, while many of the poor cannot pay or are impoverished by the effort (van Doorslaer et al 2005; O'Donnell *et al* 2005a; Suarez-Berenguela 2001). In many low and middle income countries, including India and China, but in no rich countries other than Singapore, over 40 per

cent of health care spending is out-of-pocket and/or over 3.5% of Gross Domestic Product (GDP) is spent out of pocket on health care.

Third, 'socialised medicine' – that is, health care financed through tax-based public expenditure and social insurance – is a 'luxury good': more is spent on it *relative to GDP* at higher incomes per head (Figure 1)^{xiii}. However the share of private spending on health care in GDP is completely uncorrelated with income per head (Figure 2)^{xiv}.

Figure 1: 'socialised' spending on health care as % GDP is positively associated with national income per head (selected countries marked)

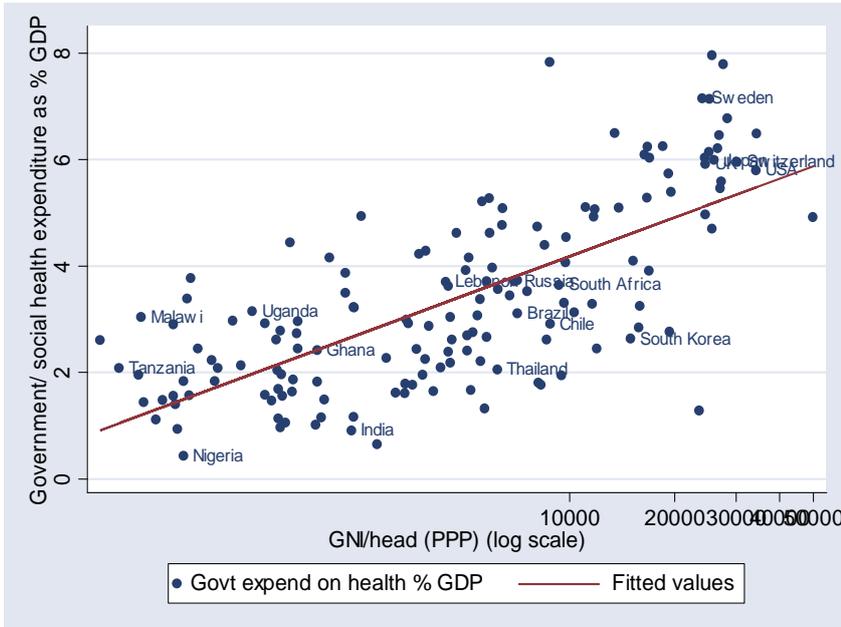
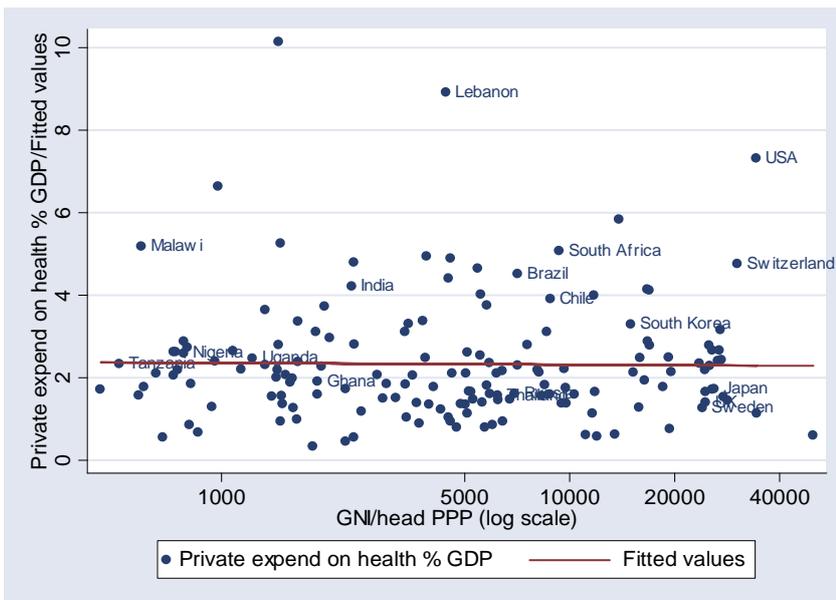


Figure 2: private spending on health care as % GDP is uncorrelated with national income per head (selected countries marked)



So what of the private/public mix on the supply side? Do countries with high proportions of private health expenditure also have high proportions of private supply of services? The answer seems, broadly, to be 'no', but there are important exceptions and the data are poor. The multilateral institutions' data sets concentrate on expenditure, and there are conceptual and practical difficulties in collecting data on ownership of health services.

I use here two indicators of the private/public mix in supply of services. The first is the proportion of hospital beds in the public and private sectors^{xv}. Beds data provide a better indicator of ownership mix than facility numbers because private hospitals tend to be smaller than public facilities. Second, I use as an intermediate indicator of commercialisation: the public/private split in ambulatory care of children and of place of delivery of babies in 44 low and middle income countries for which there have been *Demographic and Health Surveys (DHS)*^{xvi}. Both data sets refer to a range of dates in the 1990s and early 2000s. In each case 'private' includes all non-government provision.

These indicators show that in developing countries, primary care provision is quite extensively though very unevenly commercialised in developing countries^{xvii}, while hospital and more broadly in-patient care is not. In only seven of the 44 DHS countries did deliveries of babies in private facilities make up more than one third of all deliveries outside the home. Further evidence of relatively low commercialisation of inpatient care is provided by private share of hospital beds. Of 32 countries for which we have data, only four (two rich countries, Germany and Japan, and two middle-income) have more than fifty percent of hospital beds in non-government sectors; the middle income countries in question, South Korea and Lebanon, stand out as unusually commercialised on this indicator, with around 90% of beds non-government owned; the median share in this data set is 23.5 per cent.

Hanson and Berman (1998) using 1980s data concluded that developing country health care systems were not generally segmented into a 'private' sector funded privately and a 'public' sector funded by the government. Rather, health systems in low and middle income countries display complex mixed funding of mixed provision.

Finally, to what extent are different private/public mixes in financing and supply associated with differences in key health outcome indicators? I use here two indicators: healthy life expectancy (HALE) and probability of dying before 5 years (child mortality, expressed as deaths per 1000. Each of these outcome indicators is correlated with national income per head (Appendix Table 1), with most of the variation in outcomes occurring in countries below \$10,000 per head. (Appendix Figure 3 shows the pattern for HALE.) Since rich countries lean strongly towards 'socialised medicine' it follows that better health outcomes are positively associated with income per head *and* with higher government and social insurance spending relative to both private health spending and GDP. Conversely better health outcomes are negatively associated with private relative to government spending on health, and completely uncorrelated with private health spending as a % of GDP (Table 1).

Table 1: correlation coefficients: HALE, child mortality and indicators of the public/private expenditure mix in health (correlation coefficients)

Variable	Healthy life expectancy	Child mortality
% health expenditure public	0.362	-0.342
% health expenditure private	-0.362	0.342
Public health expenditure as % GDP	0.592	-0.508
Private health expenditure as % GDP	0.002	0.010

Note: 160 countries

However none the public/private mix variables exert much independent influence on health outcomes in simple cross-country regressions including income per head. Appendix Tables 2 and 3 shows results for each outcome indicator regressed on log GNI/head, on the indicators of the expenditure mix in Table 1; and on a dummy variable for Sub-Saharan Africa to pick up the impact of the HIV/AIDS pandemic on life expectancy in much of that sub-continent^{xviii}. For both outcome indicators, log GNI/head and the dummy for sub-Saharan Africa are strongly significant. The indicators of public/private expenditure mix are not significant at the 1% level in either regression.^{xix}

Other cross-country regression analyses to date have used only expenditure, not supply side data. An analysis that classified countries by the extent of national risk sharing found that more 'advanced' risk sharing (such as wider coverage of national health insurance or tax-based provision) was strongly associated with better average life expectancy and more equitable child survival rates (Carrin et al 2004). Anand and Ravallion (1993) found that for a sample of 22 developing countries, the cross-country correlation between life expectancy and GNP/head was largely explained by the incidence of absolute poverty (proportion of the population living on less than \$1 per day) and public sector spending on health care per head. And a more complex regression exercise^{xx} found that government spending on health was as important as income per head in influencing child mortality and maternal mortality in developing countries (Bokhari et al 2005). We return to government expenditure effects below.

3.3 Distinct paths of health care commercialisation: regulatory failures and challenges

The findings in Section 3.2 raise further questions to which health regulators need answers. Which forms of commercialisation are the most problematic and why? Are observed poor outcomes due to regulatory failure or to other causes? Here too we face an evidence gap. A richer, policy-relevant analysis of private health care provision and finance is required to answer more institutionally detailed questions about market dynamics, that is, processes of market change and feedback. What types of firms operate in which markets, and what is their market behaviour and why? Are they small or large scale providers, individually owned or incorporated firms, for-profit or non-profit firms, well established or with high bankruptcy rates? How does competition in each market operate? Is it focused on price, on range of services offered, on 'packages' of care sold to insurers? How do financing processes influence market behaviour of suppliers: out-of-pocket fees, HMOs or other provider-linked finance, risk-rated or population-rated private insurance, mandated or voluntary health insurance, national universal insurance? Finally, how do socio-economic structure and private sector market behaviour interact: social and economic segmentation, cross-subsidy between social groups?

Good case-based evidence of this kind is unfortunately very limited. I *illustrate* here the kinds of generalisations that can assist policy. I contrast four stylised ideal-typical market patterns in private health care in developing countries, and their outcome and equity effects, drawing on case study material, and I discuss their regulatory implications. It may help to think of these types as different 'paths' of institutional change in commercialised health care. The image is an evolutionary one^{xxi}, inviting attention to feedback and cumulative change in the commercialisation process over time. These 'paths' are policy-influenced but not policy-determined; they have an economic life of their own, with which regulators need to come to grips. This sub-section surveys some of the limited evidence found on regulatory success and failure in these contexts.

Small-scale largely unregulated commercialisation of low income primary care

In most low income countries in Sub-Saharan Africa, and in India, and in some Asian transitional economies such as Vietnam, small scale, largely unregulated provision has become the predominant form of health care commercialisation. Private and not-for-profit, mainly small scale, largely unregulated providers have come to play an important role in urban and rural primary care, for the poor and slightly less poor, in much of Africa (Konaté and Kanté 2005; Tibandebage and Mackintosh 2005; Save the Children 2005; Mills et al 2002; Ogunbekun et al 1999; Bennett et al 1997). In India, around 80% of outpatient consultations are in the private sector in both urban and rural areas, and there is no effective licensing of practitioners (Narayana 2003; Baru 1998). Vietnam has seen rapid growth of independent provision at primary level, with a strong bias towards urban areas, and with widespread unlicensed practice (Nguyen Hong Tu *et al* 2003; Segal et al 2000). Unlicensed and off-prescription sale of drugs is widespread in all these areas, and associated with high levels of sub-standard drugs, under-dosing and misuse. Payment is largely out of pocket, in the context of a government sector that also generally charges user fees and requires payment for drugs, generating exclusion and impoverishment.

Economic theory (and common sense) suggests reasons why this pattern of health care commercialisation is likely to have some particularly disastrous effects on service quality and access and on outcomes (Bennett et al 1994). First, when people have very low incomes and low levels of education, they will neither be able to pay for competent care nor able to judge the clinical quality of the care, diagnosis and medication they receive; nor will they have the social networks that allow the well off access to reliable 'guides' through the health system (Tibandebage and Mackintosh 2005). The asymmetry of information characteristic of health care markets, that creates incentives for providers to cheat users by lowering quality, will be at its worst in this kind of market. Fee-for-service systems create incentives to over-treat and over-charge the better-off while, where users lack information and ability to pay, the market incentives become focused on reducing quality while charging what people are able to pay, extracting a margin of profit from under-skilled, under-paid staff and doubtful quality of drugs, tests and procedures. Quality standards are sometimes worse than even a deteriorated public sector (Tuan *et al* 2005). Facility finances become fragile; the worst end of the system becomes abusive and dangerous, and the poorest are particularly subject to its consequences (Mackintosh and Tibandebage, 2007). These effects are still insufficiently researched, but are by now reasonably well attested in country-based field research.

Writing on the regulatory options for this type of system tends to the pessimistic (Kumaranayake 1997; Hongoro and Kumaranayake 2000). Faced with acute problems of exclusion and quality, resources for regulation through formal rule setting and enforcement are very limited in these low income contexts, and inspection therefore infrequent. Licensing processes are slow and lists out of date; firms closed down for abuse of regulation frequently move around the corner and reopen (Tibandebage *et al* 2001, Mackintosh and Tibandebage 2002). A survey in Tanzania and Zimbabwe found that regulatory efforts tend to focus – not very successfully – on controlling entry and quality through legislated rules, while not addressing problems of patient rights and anti-competitive practices (Kumaranayake *et al* 2000). Rule-based standard setting in these contexts is largely ineffective at the provider level, and liberalisation has generally preceded regulatory framework-setting.

It seems that in this context it is the interventionist, more negotiated style of regulation – including alliances with professional, user and activist citizen groups – have the best of hope of exercising some influence (Hongoro and Kumaranayake 2000; Mills *et al* 2002). Examples that have shown promise in influencing behaviour of small scale providers include accreditation of networks of drug sellers and health care providers – backed by training and support to provide incentives for providers to participate, and widespread public education to encourage use^{xxii}. 'Social marketing' of subsidised items with strong preventative benefits, such as insecticide treated bed nets, has also been developed successfully (Kikumbih *et al* 2005). There are few health insurance funds that are recorded as working well in these contexts of extreme poverty, but social and co-operative funds can raise standards by accrediting providers, so long as accreditation is accompanied by effective clinical audit and oversight (Kiwara 2000).

All of these strategies are limited by resources, though licensing and accreditation can both be in part funded by fees. Sections 4 and 5 suggest that tacking the regulatory challenge of this type of commercialisation also requires direct provision and planning to influence the incentive structures within the market: regulation alone cannot work.

Risk-averse corporatisation in middle income health systems: regulatory tools and objectives

A number of middle income countries display a quite different pattern of health system commercialisation from that just described. The key feature is a substantial role for corporate capital and large private firms, and hence regulators need to understand the firms and their objectives. The strategies of the firms and those lobbying on their behalf include pressure for the reworking of health system organisation to be more market-friendly, both for private sector direct provision and insurance and for contracting to public and social security systems; and effective market segmentation to move towards monopolisation of the high income segment. There is an observed pattern of corporate risk aversion in what remain very difficult markets for sustain private profitability.

The increased role of large scale private capital in health care has taken rather different forms in the more highly segmented Latin American systems, and in Asian health systems previous or actually dominated by 'socialised' health care. In Latin America, many health systems display quite a sharp social segmentation between private insurance-based health care for the well-off; social insurance for those in formal employment; and public direct provision for the poor. This 'segmented model' can be seen as a 'classic' Latin American pattern (Londoño and Frenk 1997), although the paths of commercialisation and socialisation of health care across the continent are in fact quite varied (Suárez-Berenguela 2001). Argentina's health care system, for example, followed the segmented pattern – each sector being legally differentiated – from the 1940s to the crisis of the 1990s; the social security sector, fragmented into many *obras sociales* (Iriart 2005). The national Mexican system has a similar segmented framework, in which the private sector has increased sharply in the 1990s, and the social security sector has its own facilities and staff (Laurell et al 2005; Parker and Gonzalez Pier 2001). The Peruvian system also has this basic structure (Mendoza-Arana 2003).

The last twenty years have seen active expansion in Latin America of the private corporate sector within this type of structure. US health care corporations have sought to expand their activities south of the border, and there has been some shift towards private health maintenance organisations (HMOs) – or 'managed care' corporations – as replacements for social insurance financing and direct provision. In Argentina, health reforms allowed social security scheme members to choose different schemes or to opt for managed care, allowing 'cream skimming' of lower risks by managed care organisations (Iriart 2005; Lloyd-Sherlock 2006). In Mexico a shift from income-related to 'capitation' payments in the social security system, and permission for employers to opt for private managed care schemes for employees, created the basis for the same shift from direct social security provision towards more private payment for managed care (Jasso-Aguilar et al 2005; Laurell 2001, Laurell et al 2005). The Mexican reforms were strongly influenced by the World Bank, which aimed to promote a separation between social security finance and private provision (Laurell 2001). The role of US corporate capital in these markets has however been unstable, with a number of large US managed care corporations moving into Latin America and then selling out quite rapidly to local private sector interests (Jasso-Aguilar et al 2005).

A rather different pattern of private investment in health care is displayed by corporations that invest in middle and high income health systems that were or remain public- or social insurance-dominated. Interviews with a number of European and Asian multinationals in health care (Lethbridge 2005) showed that they emphasised in these contexts the creation of the economic 'infrastructure' of private participation. The firms in South East Asian markets including Malaysia, Singapore and Indonesia were pursuing a dual strategy.

First, they sought increased scope for private contracting for provision financed by government. For this purpose they emphasised the need for governments to change payment systems to support a 'level playing field' between public and private sector bidders; their preference was for payment on the basis of diagnostic-related groups, which was felt to force more 'transparent' accounting on public sector competitors. Second they emphasised the objective of market segmentation, seeking to provide the wealthy with high cost, highly specialised care funded through private insurance or managed care. They were aware that they were competing for a relatively narrow segment of the population, and very strongly resented competition by autonomous government hospitals for this market.

The pattern of corporate risk-aversion was evident here too. Companies found it hard to make private provision sufficiently profitable for their investors. The spending capacity of even middle class patients is limited, and adverse selection, cost-escalation and cream-skimming narrow the private market, while high levels of competition raise capacity and costs at the top end. Companies pursued a number of risk-reduction strategies including asset divestment, low levels of permanent salaried staffing, and a preference for rolling management contracts over full responsibility for provision (Lethbridge 2005).

The regulatory implications of risk-averse corporatisation and segmentation depend strongly on the policy objectives for the overall system. To the extent that equity is an objective, there are strong arguments for resisting segmentation; in particular, the full separation between a high income private sector and the rest of the system is likely to be both unsuccessful – given the high costs such private provision impose on users – and undesirable, since it sharply reduces opportunities for cross-subsidy. Where private provision is understood as ‘complementary’ to urban social insurance, as in China (Sun 2005) that framework needs very careful regulatory specification and control. Similarly, there is scope for debate about how to organise contracting to the private sector: governments may wish to avoid the contracting-out only of routine high-volume work, leaving higher cost, higher risk activity to public providers, and to seek effective risk sharing.

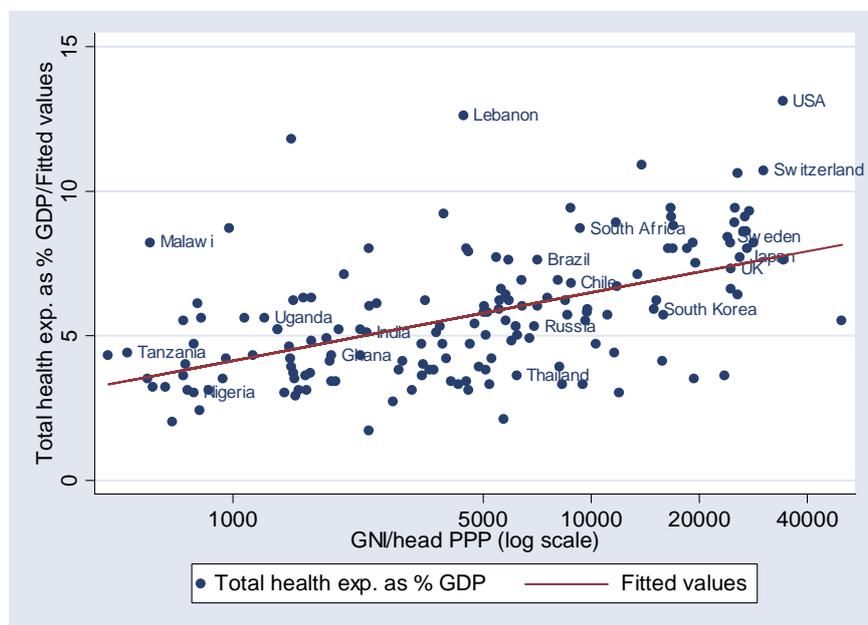
Once objectives are established, there may be a case for a pattern of regulatory intervention that involves a continuing dialogue with firms, rather than restricting regulation to a more hands-off, rule-setting role (Ayers and Braithwaite 1992). Governments can influence the culture and behaviour of large private providers, but have to accept that policy will be influenced in the process. Governments seeking to regulate large firms’ behaviour need to be consciously selective in responding to firms’ priorities. In these contexts, avoiding pressure to over-marketise the public sector, a refusal to rule out public sector competition with the private sector, and a clear policy objective of generating cross-subsidy may be useful bases for an interactive and responsive regulatory style.

Dominant commercial provision sector at middle and high incomes

There are some ‘outlier’ countries, both middle and high income, where formal private providers dominate the supply of health care; they include the Lebanon and South Korea (mentioned as outliers in Section 2) and among the wealthy, the USA and Switzerland. Detailed institutional descriptions of these countries’ systems are, with the exception of the USA, limited in the international literature. Tentative generalisations include the following (Kwon and Tchoe 2005; Holly and Benkassmi 2003; Sen and Mehio-Sibai 2005; Jasso-Aguilar et al 2005; Wagstaff in press).

First, these countries’ private providers appear to be mainly nationally based, though in the USA some large managed-care organisations are US-based multinationals. Second, the private providers focus on secondary care, creating a bias in the systems towards hospital-based provision. Third, each country has very substantial co-payments (fees) in addition to other financing mechanisms, and these create acknowledged problems of inequity of access. Finally, with the exception of South Korea, the systems are expensive: the USA and Switzerland spend a higher proportion of their GDP on health care than other rich countries and the Lebanon much more than other middle income countries (Figure 3).

Figure 3: total spending on health care as % GDP and national income per head, (selected countries marked)



The distinctions among these highly commercialised country systems lie particularly on the financing side. Of the four, only South Korea has a strongly centralised national health insurance system; the private providers are contractors to that system which appears successfully to have contained costs and which has been extended to universal provision (Kwon and Tchoe 2005, O'Donnell *et al* 2005a). Switzerland has a strongly regulated system – including central negotiations over payment rates – but relies extensively on private insurance (Holly and Benkasmi 2003). Lebanon and the USA also rely strongly on private finance (Figure 2) but without Swiss-style regulation, and a large part of the extensive public financing in both countries is expended on private sector provision. As a result these are high cost health systems. The Swiss system appears to be highly equitable^{xxiii} (Holly and Benkasmi 2003), while equity in the South Korean system has improved but is still affected by the size of required co-payments (Kwon and Tchoe 2005; van Doorslaer *et al* 2005). The USA has the most inequitable rich-country health system (Wagstaff *et al* 1999; van Doorslaer *et al* 2000), while (in)equity in the Lebanon is not well researched (Sen and Mehio-Sibai 2005).

The regulatory implications of this third pattern of dominant commercialisation on the provider side are perhaps the clearest. In middle income contexts, if such dominance is to be associated with reasonably equitable access, two conditions need to be met: low co-payments, and social insurance or public single-payer finance. The South Korean case also suggests that close working relationships between private sector and government, and a strong understanding in government of the private firms and their objectives, are important elements in ensuring that the private sector does not successfully oppose universalisation on the basis of national health insurance, and in keeping down overall costs. South Korea is an upper middle income economy with a strong indigenous private sector; furthermore the health insurance universalisation in South Korea was a popular policy response to economic crisis in the late 1990s (Kwon and Tchoe 2005). Switzerland, which achieves reasonably equitable access with highly commercialised provision and finance subject to intensive regulation, is extremely wealthy; the USA, also wealthy, fails to achieve equity of access and indeed does not seek to do so (van Doorslaer *et al* 2000). Dominant commercial provision is not in general a strategy to be recommended to lower income countries because of its cost implications.

Highly commercialised but unregulated input supply

An element of health systems which has long been fully commercialised is the production of medicines and medical supplies and equipment. These suppliers have also become multinational in scope, with producers in India and China taking large shares of developing country markets (Chaudhuri 2005). These – unlike health services – are traded commodities which in principle can be purchased on markets by knowledgeable buyers, but in practice there are difficulties for end users – facilities and patients – in ensuring quality. Medicines in particular can be sub-standard or worse, and in developing countries regulation of both firms and traders is often poor (Stenson *et al* 1997; Laing *et al* 2001). India provides a particularly sharp example of the problem: a country with a large number of producers of medicines and supplies that regulates the firms very poorly and provides no protection for consumers from substandard medicines sold on deregulated markets. The result is that India produces large quantities of medicines on which people in low income countries rely, while failing to ensure safe and reliable access for its own population (Chaudhuri 2005, forthcoming). The general problem of access for low income populations to safe drugs in contexts of deregulated medicines markets is very widespread, and not limited to low income countries (Homades and Ugalde *in press*).

The regulatory implications of commercial sale of medicines and medical supplies differ in principle from health care services regulation, since these are commodities open to testing and inspection. Registration of goods, inspection at ports of entry, and inspection and licensing of production facilities, can be effective in improving quality of goods on the market^{xxiv}. Furthermore they can be self-financing, through charging fees for registration and market access (Kaplan and Laing 2003). Public and donor procurement systems for drugs and supplies can also strongly influence quality and availability (Homades and Ugalde *in press*; WHO/EPN 2006), and are a key element of the planned provision to which we now turn.

4. Publicly planned provision: inequality, inequity and redistribution

Governmental or quasi-governmental^{xxv} action is essential to undertake the core tasks of redistribution and overall health system management that are required to address health system inequity. Access to health care by the poor implies and requires effective redistribution, and that will not be a feature of unregulated market provision. To achieve it at scale requires government planning for direct redistribution of the benefits from tax or social insurance funding. Section 4.1 surveys comparative evidence on governments' redistributive success and failure. Section 4.2 then employs the 'ideal-typical' case approach again to examine failures and successes of direct government provision in playing a redistributive role within mixed systems. The challenge of health system management as a whole is taken up in Section 5.

4.1 Redistribution: a core government task in health

If those on low incomes are to be given anything approaching equitable access to health care, the health system has to operate redistributively. The better off have to pay for the poor. The key question is, how can that be achieved in very different mixed health systems? Much recent international policy literature has not posed the policy question in this way at the level of health systems as a whole. Rather it has tended to concentrate on policies to improve the efficiency with which the (fairly) poor can pay for themselves, as in the literature on community health funds^{xxvi} (Preker and Carrin 2004), and on evaluation of the incidence of government health spending alone, or of individual projects (Gwatkin *et al* 2005). This partial approach is however now being complemented by comprehensive cross-country comparative analysis of the redistributiveness of health systems, notably in Asia and Latin America (O'Donnell *et al* 2005a, 2005b; van Doorslaer *et al* 2005; Lu *et al* forthcoming 2007; PAHO 2001).

This section and the next employs the following definitions:

- By *redistribution* I refer here to a transfer of resources from the better off to the poor; a *redistributive* health system is one that achieves this.
- By *progressive* I mean redistributive in the sense that a progressive health system leaves the distribution of resources in the country less unequal^{xxvii} than it would be without the health system.
- By *pro-poor* I mean hyper-redistributive in the sense that a pro-poor health system allocates its resources disproportionately to the poorest, either in response to their greater need or over and above that greater need.
- By *regressive* I mean the opposite of progressive: a regressive health system leaves the distribution of resources in the country more unequal than it would be without the health system.
- By *horizontal equity* I mean equal health care provision for equal need
- By *vertical equity* I mean pro-poor health care provision that goes beyond the requirements of horizontal equity.

Unregulated private provision for individual payment cannot be redistributive: in these market circumstances access to care – and generally also its quality – will depend wholly upon capacity to pay. The better off will receive more and better; the poor will receive much less and may be pushed further into impoverishment in the process, so the system will be extremely inequitable and is likely to be regressive over all, that is, it will leave the distribution of resources the same or worse. Insurance systems however may have redistributive effects. Unregulated private insurance cannot be expected to redistribute across income groups, but regulations that reduce the ability of insurers to reject high risk individuals and that restrict risk rating can reduce inequity among the insured by pooling risk (Barr 1998). Social insurance funds, charging premia according to income but providing access in relation to need, can be expected to be progressive within the insured group. But since they typically focus on those in formal employment they can worsen inequity nationally by pulling scarce resources towards those insured groups (Kutzin 2001; McIntyre *et al* 2003). This leaves a considerable direct redistributive burden on government.

There has been considerable recent emphasis in the multilateral health policy literature on governments' failure to benefit the poor with government health spending. What is the evidence to date on the redistributiveness of government health care in developing countries, and the extent to which it meets the strong criterion of 'pro-poor' spending? There are several ways to specify this question. We may ask, how redistributive is government-funded provision – including that part of the government provision funded by donors? Or, to what extent does government provision improve the redistributiveness, and inclusiveness of the poor, of the health system as a whole? We may also ask to what extent donor funding is redistributive, including non-governmental action funded externally and direct donor provision within developing countries? It is difficult to find data to address that last question.

Most systematic studies of redistributiveness of health expenditure and provision are of high income countries. Since the results influence international policy prescriptions they can be rapidly stated. In rich countries, the health sector is generally highly redistributive, transferring resources from the better off to the poor. In almost all high income countries – the United States is the major exception – a political and social commitment to reasonably equitable access to health care financed largely through social insurance or general taxation has provided a politically stable combination of insurance against the costs of illness and redistribution of resources since the 1950s (Barr 1998).

Among high income countries, Wagstaff et al (1999) found, using 1980s data, that in those which finance health care largely through taxation, funding was progressive: that is, the income distribution is more equal after payment (the main exception was Portugal). In most social insurance-based countries (Germany, Netherlands) funding was mildly regressive, leaving the income distribution rather more unequal (the exception was France). In private insurance systems (Switzerland and the USA) funding was unequivocally regressive: the poor paid more relative to income.

However health care provision in most rich countries was highly progressive. Van Doorslaer et al (2001) found that physician visits in high income countries were distributed fairly closely according to an independent assessment of need; the exceptions were the USA, Portugal, Greece and Austria. However, in most countries the better off were significantly more likely than others to be attended by a specialist rather than a general practitioner. In the USA however the impact of differential private insurance coverage on inequality of access to doctors is very marked. In the USA, the better off spent more on their care relative to *need*; the data could not establish whether this translated into better treatment in relation to need but that seems very likely to be the case (van Doorslaer *et al* 2000).

Taken together, these findings imply that health care in almost all rich countries is highly progressive: financing is progressive or mildly regressive, while delivery approaches equity in most of these very unequal societies. Health care, funded largely through taxation or social insurance, is therefore a major method of redressing socio-economic inequality. These large sums of redistributive spending are furthermore embedded in quite stable social relationships and political commitments underpinning national health systems in these countries (Besley and Gouveia 1994). The government and social insurance health spending not however generally 'pro-poor' except to the extent that it displays horizontal equity, providing more care to the poorest who on average display greater need. The political demand to achieve strongly 'pro-poor' government health expenditure – vertical equity - is mainly reserved for developing countries.

As in rich countries, so also in developing countries the redistributive impact of health systems appears to depend strongly on the balance between private and public spending. The balance of evidence suggests that publicly financed health care is redistributive in most developing countries, and strongly redistributive in some.

Developing countries tax systems are often thought to be less progressive than those of high income countries, since low income countries in particular tend to rely more on indirect taxes and less on direct taxation or social insurance (Mirlees 2005). However a study of Asian countries' health financing systems shows the tax funding to be progressive or proportional, while social insurance funding is generally progressive (O'Donnell et al 2005a). In Latin

America conversely, a multi-country study found tax and social insurance funding to be regressive or at best neutral, in countries which have a generally high level of socio-economic inequality by international standards (Suarez-Berenguela 2001:129).

On the expenditure side, it is important to distinguish carefully between government health spending that is 'well targeted' or pro-poor, and that which is progressive or inequality-reducing (Chu *et al* 2005; O'Donnell *et al* 2005b). A comparative study of eleven Asian countries (O'Donnell *et al* 2005b) concluded that four (Hong Kong, Malaysia, Thailand and Sri Lanka) achieved 'pro-poor' or even distributions of benefits from public health spending, while in all the others except Nepal the distribution was 'inequality reducing'.

In Latin America, benefit incidence studies suggest that the benefits from public health spending tend to be weighted towards the poor (Gwatkin 2001). The experience is however very varied across countries: the Latin American comparative study cited above (PAHO 2001) found for example that Peru had a roughly proportional distribution across poor and rich quintiles of the population; Argentina, Colombia, Jamaica and especially Chile a pro-poor distribution; and Ecuador and Guatemala strongly pro-rich (Suarez-Berenguela 2001).^{xxviii} The study also echoed another finding of the Asia study: the countries where the government spent a higher percentage of GDP on health also tended to use that funding more progressively.

Sub-Saharan African countries' distributional public health performance has been extensively criticised; Davoodi *et al* (2003 pp. 24, 33) for example argue that, 'Spending on primary health care is poorly targeted ...the poorest quintile receives the lowest [share] in Sub-Saharan Africa..', and that 'the middle class captures most of the gain from ...primary health care, particularly in sub-Saharan Africa'. However, in the profoundly unequal and poverty-stricken context of low income African countries, health care spending by government does nevertheless reach those in the lowest income categories (Kida and Mackintosh 2005). Chu *et al* (2005) conclude that although Sub-Saharan African health expenditure is not well targeted, 'all thirty available studies find government health spending to be progressive' (Chu *et al* 2005: 255) Indeed as Demery (n.d. p. 2-17) comments in a World Bank document, referring to the case of Ghana,

'governments would be hard pressed to find another commodity [other than public spending on health centres] where consumption by the poorest quintile approaches such a large share of total consumption'.

Public tax-based expenditure on health thus appears to be generally redistributive in developing countries, though there are exceptions. District-level public health care systems can thus be a robust method to redistribute resources in a manner that, rather than 'targeting' a desperate minority, provides support for the broad majority of the poor and the vulnerable in very low income countries. Similarly, Asian countries such as Sri Lanka and Thailand are shown to have allocated substantial public resources to health and thereby achieved wide coverage (O'Donnell *et al* 2005b). The overall redistributiveness of health systems in developing countries thus depends strongly upon the balance of public over private health expenditure, a balance that tends to be least favourable to the poor in the poorest countries (Section 2).

A final reflection on the 'pro-poor' criterion for government health spending: this paper is not arguing that that this is not a desirable aspiration. On the contrary, there are strong arguments for vertical equity as an aspiration for health spending: health systems can as argued above be a robust method of redistributing resources to those most in need of them. It should be recognised however that this *is* a politically demanding requirement in many circumstances. The implications of this requirement appear to depend, as the next section argues, upon the role played by government activity in the system as a whole – including non-governmental non-profit finance and provision.

4.2 Planned provision in the wider health system: ideal types, redistributiveness and quality issues

This section identifies – in the manner of Section 3.3 – some 'ideal typical' roles of governmental and quasi-governmental planned provision in health systems in developing countries. These are again *illustrations* of the type of

patterns that may be useful for policy thinking, with evidence on their implications for government sector redistributive success. The three types are government planned provision (that is, direct government provision or provision financed and planned by government) as: (i) a segmented sector largely used by the poor; (ii) the basic provision used by most of the population; (iii) a widespread but deteriorated resource avoided even by many of the poor. In the last context, a case of large scale planned and organised non-governmental non-profit provision is discussed.

Government health care as a sub-system for the poor

Government health provision as a sector almost exclusively for the poor is a feature of highly segmented health systems that reflect societies sharply divided along fault lines of social and economic inequality. As Section 3.3 noted, this segmentation can be characterised as a Latin American pattern of provision, though there is much variation in the sub-continent. Major exceptions are Brazil, where the SUS (Unified Health System) is a universalistic government health system with wide social reach across 70% of the population, and Costa Rica which has a very inclusive system. Outside Latin America, South Africa is a relevant case of segmentation.

In these segmented systems, the government spending, taken alone, may be redistributive and even pro-poor (Section 4.1) because the provision is shunned by the better off. But that very characteristic *may imply*^{xxix} that the health systems as a whole in which they are embedded are regressive. In other words these are systems where the health care segments not only reflect sharp social and economic hierarchies and divisions, but have actually contributed strongly to shaping those divisions and may still be reinforcing them. Social class or other characteristics, such as employment status, income and ethnicity, have determined the type of health care system to which individuals have access, creating that access as a defining characteristic of status.

In this circumstances, the planning challenges include rebuilding the scale and quality of the public provision on which the poorest part of the population depend, and improving the over all redistributiveness of the system as a whole. There may also be major policy challenges involved in sustaining and improving the internal redistributiveness of the social insurance funding, and improving the effectiveness of contracting with providers by social insurance funds. Latin American and South African research findings suggest that the difficulties these planning objectives confront in segmented systems include:

- a generally low rate of taxation and widespread tax evasion (Yazbeck and Peters 2003);
- a problem of suppressed demand for deteriorated public services (Suárez-Berenguela 2001);
- a particular problem of exclusion of marginalised ethnic and social groups (Suárez-Berenguela 2001);
- the difficulty of integrating systems across social as well as organisational boundaries (Londoño and Frenk 1997; McIntyre et al, 2003);
- fragmentation of social insurance mechanisms in some countries, and their association with (politically contested) powers of trades unions (Barraza-Lorenz *et al* 2002; Iriart 2005);
- international policy pressure to move from social insurance towards managed care providers that may exclude high risk applicants (Section 3);
- political opposition from private insurers to extensions of social health insurance that compete for their markets (Thomas and Gilson 2004).

There are no easy ways forward in such contexts. The literature documents a number of approaches that have had some success.

Spending more from taxes works: the Latin American countries with higher public spending consistently had more progressive use of those funds. Increases in public health expenditure are consistently redistributive in most of Latin America and the Caribbean (Yazbeck and Peters 2003). Furthermore it is possible to devise more progressive tax funding: Brazil, a highly unequal country, has funded its public health expenditure expansion progressively using

earmarked business taxes and a tax on financial transactions (Coelho Campino *et al* 2001). Mexico City succeeded in shifting tax funding sharply towards health (Laurell *et al* 2005). Peru has expanded the public health infrastructure and this has been equity enhancing though not as strongly as might be hoped (Valvidia 2002).

Demand for health care by those on low incomes and its effective use can also be increased. The Mexico City experiment began by publicly giving to the uninsured the same health care rights as the formal employees had in the social insurance sector, and then expanded and improved the public sector provision to meet the increased demand from those registering (Laurell *et al* 2005). The *Oportunidades* programme in Mexico, a cash benefits programme with strong (and controversial) conditions that include health clinic attendance, has had positive effects on health outcomes in marginalized areas (Rawlings and Rubio 2003).

There is a consensus in the research literature that integration of funding mechanisms, to overcome the inefficiency inherent in fragmentation and to increase redistributiveness, is both essential and difficult. The greater redistributive successes in Brazil and Chile have been attributed to less clientelist, more class-based politics in those two countries than in others in Latin America (Yazbeck and Peters 2003). In South Africa, Thomas and Gilson (2004) chart the difficulties of negotiating an extension of social health insurance with the various interest groups. Londoño and Frenk (1997) note that reforms that do not command consensus cannot be imposed, while 'vertical' additions to segmented systems can make fragmentation worse.

Government provision as the basis of the health system

The opposite pole to these segmented systems in developing countries is represented by the cases where government-funded provision – including substantial direct provision – is the basis for the health system as a whole, in the sense that it is used by a large part of the population across social classes. This situation is found in both middle and low income countries. Examples of middle income country contexts include Thailand and Malaysia; low income examples include Sri Lanka. African countries with a relatively high use of the public sector, in relation to experience on the sub-continent, include Tanzania and Zambia (Section 3). Cases where a history of widespread public provision appears to continue to shape current mixed health provision include Kerala state in India.

Sri Lanka, like Kerala, has seen a rise in the availability and use of private providers, notably in primary care, since the 1980s; in Sri Lanka they now provide 45% of primary care episodes (Rannan-Eliya *et al* 2003). Most hospital care remains public, and public provision is, unusually for low income countries, generally free at the point of use (O'Donnell *et al* 2005). The health outcomes in the country remain above average for Sri Lanka's income level in international comparisons. The public expenditure on health benefits the population roughly proportionately across income groups (O'Donnell *et al* 2005), while the tax-based funding of the public sector is somewhat progressive. The absence of charges for public sector care appears effectively to protect poor Sri Lankan households from catastrophic health expenditures (Russell and Gilson 2006; van Doorslaer *et al* 2005). The widespread public infrastructure of hospitals in rural areas has contributed to the effectiveness of government provision in Sri Lanka as in Thailand and Malaysia, helping to ensure that public hospitals are physically accessible to the poor (O'Donnell *et al* 2005). The effectiveness of the system is well documented, and rooted widespread education in public health, constitutional commitment and strong popular support (Jayasinghe *et al* 1998), but quality and redistributiveness are threatened by an overall decline in government health expenditure relative to GDP (Withananchchi and Uchida 2006). We return to private-public sector interactions in Sri Lanka in Section 5.

Thailand and Malaysia are middle income cases where relatively high government health expenditure and widespread government direct provision are associated with redistributive effectiveness and good health outcomes (O'Donnell *et al* 2005a, 2005b). Public health care is moderately pro-poor in both countries. Thailand has achieved universal coverage through its health card scheme since 2001, with very low flat charges for access to care and effective exemptions for the indigent; here too, the system is successful in tackling catastrophic health care payments (van Doorslaer *et al* 2005).

There are no low income African success stories of this kind, but there are examples of efforts to build up public provision on a more accessible and reliable basis, based on existing successes. Examples are Uganda's removal of user fees, associated with a rise in public expenditure on health, which while not unproblematic has greatly increased use of health services by the poor (Xu *et al* 2006; Pearson 2004); Tanzania's long term provision of free medicines in rural dispensaries, a donor-funded scheme which while again not unproblematic has supported access to reliable essential medicines (Tibandebage and Mackintosh 2005); and Ghana's attempt to use increased and earmarked VAT revenues to remove the much-disliked 'cash and carry' fee structure in the Ghana Health Service and replace it by a national health insurance scheme that also relies on locally collected prepayments^{xxx}.

Government provision as a widespread but deteriorated resource, and the role of quasi-governmental NGOs

Widespread but severely deteriorated public health provision is all too prevalent in low income countries with weak governments or where health care is a low political priority. The consequences are dreadful for the majority poor population. In much of Sub-Saharan Africa, the 1980s saw a severe collapse in economic welfare, as a result of depression associated in some countries with famines, and associated with a dramatic collapse in government health care (Mackintosh 2001; Cornia *et al* 1987). In many Indian states, the deteriorated fabric, and staffing and service failures of the public health sector in many states is well documented (Borah 2006; Peters *et al* 2003). Quality of service in these public sector facilities can be dreadful – rude, abusive, incompetent, unpredictably unavailable, as well as requiring the payment of bribes – and people move to private providers where they can. In Nigeria, trust in health services linked to government appears to have almost completely collapsed (Ogunbekun *et al* 1999). The consequences for people driven to reliance on unregulated small scale private providers were documented above.

The implications of disasters of this kind are twofold. First, the rebuilding of trust and competence in public services once they have collapsed is a huge task. Abusive cultures, based on individual private gain and individual despair, once embedded are extremely hard to eradicate. Anecdotally, there is quite a widespread belief among people working in these contexts that only a complete institutional break with past cultures can allow – not ensure – change. For example, this was the view of a Tanzanian surgeon interviewed in the late 1990s – someone widely trusted locally – reflecting on a disastrously deteriorated hospital in which he had the misfortune to work: closing it down and starting again seemed to him the only way forward^{xxxi}. This is the basic intention that has led a number of governments as well as donors to hand ownership and management of particular facilities to faith-based NGOs, as the Tanzanian government has done with a referral hospital that had previously been nationalised. It is not that all NGO provision is better than governmental provision, it is not (Tibandebage and Mackintosh 2005). The handover, rather, allows (it does not ensure) an institutional break in culture and behaviour as well as a crucial shift to more devolved and active management.

Similarly, there are places where non-governmental programmes or donor-driven vertical programmes with non-governmental partners have replaced the function the local governments are unable to achieve. The best known example of the former case is BRAC in Bangladesh. The Bangladesh context is one where the public sector is not providing widespread and effective care. The health system relies heavily on out of pocket payments, mainly paid to the private sector; only a quarter of the health expenditure comes from government funds. The distribution of the benefits of public health expenditure is quite strongly 'pro-rich'. While the overall effect of the government health provision remains progressive, the system is not serving the poor effectively at all.

In the context, one of the best known large scale NGO interventions in health has emerged and grown. BRAC's health provision is built into a programme that is focused on improving the economic welfare of the poor, and it is now very extensive, providing basic health services to over 31 million people and TB services to many more^{xxxi}. The health care provision is long standing, includes both fixed health centres and programmes relying on community health volunteers, and while BRAC still has problems reaching the extreme poor, is successfully reaching a large

population of the very poor in Bangladesh (Rhode 2006; Matin n.d) BRAC is now attempting to spread this approach to Afghanistan (Mushtaque *et al* 2006). This very large NGO appears to be providing planned care to poor communities at a quasi-governmental scale.

5. Planning-with-regulation: health system management with perverse markets and imperfect public provision

Designing planning-regulation interactions into health systems management

Markets and public health care interact within health systems. A Ugandan researcher described eloquently the ways in which this interaction can develop perverse dynamics that worsen poverty:

‘Thus the cycle of poverty in the Ugandan health sector continues. The low incomes of public health workers which force them to set up private facilities, the uncertain gains from private practice because of inconsistent demand for services, and the poverty of consumers/patients are essential ingredients of an ill-functioning health care system. Over time, they have developed an integrated relationship, just as the veins in a plant leaf carrying food, water and other minerals sustain and affect each other.’ Asimwe (2003:176)

It is the job of health policy making to use regulation and planned provision in ways that break this kind of perverse cycle and establish more virtuous forms of expansion and feedback.

Policy makers are generally well aware that public planned provision and private market behaviour interact, but the policy models widely used for health systems management lag behind this perception. The theme of this final section is that planning and regulation need to be used in combination to break perverse downward spirals, constrain perverse incentives, redistribute resources, and create sustainable shifts towards more equitable care. Furthermore, policy makers must identify synergies and trade-offs between these tools in specific national contexts, recognising that planning is shaped by powerful groups and political interests, that information is incomplete, and that markets are typically perverse with regard to outcomes and equity.

The question this section asks is, how can policy synergies be identified and exploited in differing contexts of resource and political constraint? The starting point is to recognise that the tools serve different but interlocking objectives, as argued above:

- Government (or quasi-government) planned provision serves to : increase redistribution and ensure inclusion at the bottom; sustain public sector quality and accessibility; shape the place of the private sector within the system.
- Market regulation serves to: ensure quality; restrain costs and charges; shape the contribution of private firms to the system as a whole, in particular preventing the worsening of inequality and inequity.

The scope for synergies differs sharply at different levels of income per head. This final section is organised around a series of *illustrative* examples of regulatory-planning synergies, identifying types of interactions between planned provision and markets that can be addressed by policy makers. In addition to redistribution, a core governmental objective in health systems is the management of the direction and interactions of the system as a whole.

In this endeavour, the discussion above suggests that:

- i. Health systems management can seek to influence both the behaviour of formal institutions such as firms and facilities, and also the nature of ‘informal institutions’ such as rules of operation, professional cultures and norms of behaviour, and patterns of competition;
- ii. It is useful to recognise that behaviour of firms, facilities and people in all sectors responds to both to material incentives (which therefore should be used with caution) and to professional standards, beliefs and the views of professionals and users;

- iii. It is also useful to recognise that government behaviour is generally influenced both by the interests of powerful groups and of civil servants themselves, and also by broader commitments to concepts of the public interest; and that governments have limited information;
- iv. And finally, that policy can influence the evolution of health systems in the sense of influencing experience that feeds into future behaviour.

Effective regulation and planning therefore require the exercise of *foresight* about how the future evolution of the system is likely to be influenced by current policies. This list serves to emphasise the importance of incentive design, of culture and context, and of allowance for the exercise of power, issues raised in the following examples.

Planning the public sector as ‘beneficial competitor’: planned provision as regulatory intervention in low income contexts

In low income contexts where there is credible capacity to plan government provision, the evidence in Sections 3 and 4 suggest that planned provision should be designed in part to shape through intervention the private sector alongside which it operates, rather than relying solely on ‘classical’ regulation. Important interactions that can be exploited for this purpose are:

- Competent government provision can put a ‘floor’ under the quality of the private providers working alongside it;
- Competent government provision that is widely accessible and free at the point of use can ensure that out-of-pocket costs are shifted from poor to better off, turning the whole system more redistributive.

Most of the evidence for the potential success of this strategy comes from Asia, and the proposal overturns a number of dominant policy presumptions. First, consider the quality interactions. In Sri Lanka, a detailed study of the quality of care provided by private providers found it to be competent (Rannan-Eliya *et al* 2003), in contrast to evidence from low income contexts elsewhere (Section 3.3). In India, there are well documented quality problems in private provision in most areas, and public sector care for the poor majority is also of poor quality (Bhatt 1999). In Kerala state however, the quality of the public hospitals – despite their undoubted problems – appears to informed commentators to put an effective quality ‘floor’ under the provision private sector facilities can offer.^{xxxiii}

We have elsewhere called the potential effect of reasonable quality of public provision on the quality of private care, ‘beneficial competition’ (Mackintosh and Tibandebage 2002). To the extent that the public sector in low income contexts can act as a beneficial competitor, it can prevent the kind of private sector quality deterioration described for low income contexts in Section 3.

Second, the public provision needs to be free – or virtually free, with very low capped charges – at the point of use, and that includes hospital care. Health planners are aware that public sector charges influence charging elsewhere in the system (Tibandebage 1999), but there is very little research on these interactions in determining levels of prices and charges in low income fee-for-service dominated systems. Only if the provision is free, or close to free, and also geographically widely accessible, can it have the beneficial redistributive effects documented in Section 4.2, and also include the poor in access to care. The public facilities may have longer waiting times and a certain level of hassle in public facilities, but must also provide (correctly perceived) clinical competence and access to essential medicines.

The preconditions for successful interaction between public planned provision and private markets in the form of beneficial competition, at low incomes, are thus quite demanding and include strategies to raise sufficient tax finance. They can however be shown to have a very desirable set of effects. In Sri Lanka the interaction between public and private provision has made health care accessible to the poor while encouraging those who are able to pay something to use private providers, in particular in primary care, in a search for better speed and responsiveness (O’Donnell *et al* 2005). The health system outcome in Sri Lanka has been that universalist public provision open to all has encouraged the emergence of a small scale private sector which is competent and predominantly used by the

better off, and thus has effectively made the health system as a whole operate more redistributively. In effect, the public sector is also acting, through the competitive process, as a market regulator of private primary care, a process that can supplement weak 'classical' regulation.

Planning the public sector to complement regulated markets: sustaining public benefit culture and moving towards provision free at the point of use

The strategy just outlined of 'beneficial competition' makes substantial demands on the public sector. The planned public provision is the site of inclusion and the generator of redistribution within the system. This has a corollary which is not well explored in the current literature: to what extent can the public sector achieve this if it mimics the private sector, through the incorporation of explicitly market mechanisms?

There is evidence in this paper to suggest that this may be a problem. Perverse effects of public sector marketisation in relation to the promotion of equity include public sector primary facilities in low income countries that are unable to institute and manage exemption mechanisms for the poor (Section 3.3). Furthermore as noted in Section 1, there is rather little current evidence in the literature that a reform model for the government health sector in developing countries that separates 'purchasing' from 'providing' is feasible or beneficial. It is a demanding model in countries with limited administrative competence and should be used only where the efficiency benefits are clearly identified and the creation of perverse effects on equity can be avoided. While there are documented benefits from hospital autonomy to manage finances and organisational processes, the public benefits can be undermined if hospitals are given incentives to prioritise higher paying patients (McPake 1996).

Creating synergy between public and private provision for equity purposes requires a public sector that deliver inclusiveness of the poor, an orientation towards public health, and a responsiveness to a low income population's needs: in other words, it requires a public benefit culture. There is quite a widespread view in the literature that marketising reforms have had the opposite effect, allowing primary level facilities' behaviour to be led by requirements of marginal income-generation, and undermining claims by the poor (Section 4.2). The research literature includes evidence of the importance of professional culture and active involvement of users in the management of the public sector, including the creation of deserved trust (Gilson 2003; Gilson *et al* 2005). Reinforcement of a public benefit culture requires activities such as creating partners for negotiation in the form of stronger professional associations; building up popular expectations and claims rather than dampening them (Jayasinghe *et al* 1998); and encouraging faith-based providers to become partners in planning rather than pushing them in a more commercialised direction.

Creative uses of interactions between sectors for this purpose in middle income segmented systems includes the use of private and social insurance sector standards, where they are higher than the public sector standards, as a basis for public claims on the public sector by the uninsured. This was the approach of recent Mexico City health policy (Laurell *et al* 2005): a widespread but run-down public sector had new demands put upon it when the uninsured were given, on registration, the rights to care enjoyed by those in the social insurance sector. The public sector was then expanded in response to rising demands. Increasing expectations of the poor has been argued to be important in a number of Latin American contexts (Suárez-Berenguela 2001), and policies that seek to reduce those expectations, as in reform proposals for Sri Lanka, have been strongly criticised (Jayasinghe *et al* 1998).

The health system management implications thus are that proposals for reform of public services that encourage marketisation should be carefully analysed for their implications for the system as a *whole*, rather than limiting analysis to their potential impact on operation of particular facilities. Proposals for privatising or corporatising hospitals should be examined particularly carefully for perverse equity and efficiency system effects (Wagstaff in press). Within the public sector, proposals for autonomy based in contractual relations between 'purchasers' and 'providers' in the form of 'hard' contracts that specify outputs and shift the risk of non-delivery to the providers should be treated cautiously. Where the providers have relatively little control over the risk factors, this type of contract can

undermine professional commitment; 'softer' contracts, which are incomplete, rely more on communication and trust, and share risk in ways felt to be equitable, are both more efficient and likely to be more motivating (Mackintosh 1999).

There needs to be more research on what makes provision free at the point of delivery work well in very low income contexts. It is quite widely accepted now that overcoming exclusion through inability to pay in low income countries requires the removal of fees for access to public sector primary care, but that policy is difficult to manage and can easily produce unintended perverse effects (Gilson and McIntyre 2005; Pearson 2004). Yet detailed studies of what makes public sector free provision work effectively, especially in terms of staff commitment and motivation, are still lacking. What cultural, professional and financial reorganisation is required? What behavioural norms have to change and how can that be achieved? What can be done to preserve – rather than undermining – effective achievements in delivering care free at the point of use?

Creating consensus on compulsion: planning provision and regulating private sector behaviour through social insurance

In middle income countries, a quite different form of successful integration of planned provision and regulation is represented by countries that have universalised access through social insurance. Here the key interactions appear to be:

- Universal social insurance requires compulsion, since employers must pay and providers contract with the fund(s); this in turn requires consensus if it is to work in practice;
- Generalised social insurance implies blocking market access for independent risk-rated private insurers who may therefore oppose the initiative;
- Private and public providers need to be involved in negotiated fee setting, to stabilise the system;
- The system requires sufficient subsidy for those unable to pay, and low or no co-payments to avoid exclusion of those unable to pay out of pocket; this requires careful institutional design.

Social insurance is probably the most successful regulatory tool for managing commercial health care providers while addressing inequity. Countries have pursued very different political routes to universal social insurance. Many low income countries have social insurance systems for the formally employed, and these can be extended to wider coverage over time, as incomes rise. At higher middle income levels – for example in South Korea – universal coverage can be achieved (or close to achieved, given a continuing problem with high co-payments) with a highly commercialised health care supply side as in South Korea (Kwon and Tchoe 2005; Gauld *et al* 2006). In lower middle income countries – such as South Africa – extending social insurance to wider groups is a method to improve inclusion, and it may rely on relatively lower cost public hospitals to keep premia manageable at lower incomes.

At any income level, social insurance requires demanding levels of consensus, and it is hard to move towards universalisation via social insurance in the face of strong lobbying from private health insurance industry interests (Kumaranayake 1997). Preventing, by regulatory rule making and enforcement, the building up of a private individual risk rated health insurance segment for the well off – by insisting on high levels of risk pooling and redistribution across income levels as health insurance develops, or by preventing the entry of competing insurers – is likely to open up an easier future path to universalisation than is faced by countries with highly segmented systems (Kutzin 2001).

Social insurance systems are potentially a highly effective tool for regulating private sector clinical behaviour. Accreditation and contracting can support competent provision, and clinical audit. The system provides a forum for negotiated agreements on price, salary and fee ceilings which are a common feature of rich country and East Asian health systems that display good cost control (Wagstaff, in press), and for discussion and development of clinical standards. These systems are examples of a well managed interactive regulatory approach based in a good understanding of provider behaviour and systematic information feedback from providers. Establishing contracting

procedures that do not generate perverse incentives for over-treatment and 'DRG-drift' – whereby hospitals choose treatments in higher reimbursement categories – and hence cost-escalation is not easy and requires careful incentive design (Kutzin 2001).

Universalisation of health care provision through social insurance requires compliance of the private sector with compulsion, which in turn requires political negotiation: this may explain the historical experiences of countries completing universalisation as a political response to crisis (Section 4.2). It also requires careful design of subsidy where there are a number of socially differentiated funds, and overall design of the system so that there is an equalisation of benefits across social groups with differentiated abilities to pay. The Japanese system achieved this very effectively, and there are a number of lessons to be learned from East Asia on system design including the effective control of costs and exclusion of insurer competition (Gauld et al 2006;Wagstaff in press).

In more fragmented social insurance systems such as those in much of Latin America, ownership of facilities by social insurance funds has been seen as one way to reduce this kind of cost escalation. This risks other problems – notably fragmentation, inefficiency, and unresponsive monopoly behaviour. There are no general solutions to this conundrum, it requires constant monitoring and negotiation. The Argentinean experience of moving from problematic fragmented *obras sociales* to fragmented private managed care widely characterised as worse (Lloyd Sherlock 2006; Iriart 2005) is a cautionary tale. Market regulation of providers through large scale social insurance is both quite widely successful in higher income contexts, and managerially demanding.

In low income contexts it is hard to extend social insurance to create universal access. Efforts to do so, such as the current Ghanaian national health insurance policy, require reliance on low cost public provision and some redefining of the concept of 'social insurance' to focus on ways to finance universal health care access through a mix of tax funding and national insurance contributions. These creative financing experiments are promising; they rely strongly on sustaining the quality of the public sector as the core provider, distinguishing these schemes from social insurance mechanisms to fund privately produced care at higher incomes.

Integrate planning and regulatory activity wherever possible: for example in managing input supplies

Input supply offers a good evidence-based opportunity to link planning and regulation. Regulatory action at the borders of importing countries can work and can be self sustaining (Section 3.3). Centralised planned purchase of essential drugs by government agencies or non-profit agencies is well tested and can gain donor support (WHO/EPN 2006). The purchasing function can also be used, through local manufacturer preference, to support local manufacturing development in least developed countries^{xxxiv}. It needs tight monitoring and scrutiny, well designed 'classical' regulation that can be self-financing, and the effective use of penalties when necessary.

The interactions arise because the regulatory system of medicine registration supports the use of an essential drugs list and underpins quality by inspection at the manufacturing plant and at the port, while centralised purchasing for the public sector can buy cheaply through tendering, and fulfil the allocative function of ensuring the widespread availability of essential medicines.

6. Conclusion

The Abstract provides a summary of the argument of this paper. In conclusion, it should be noted that both planning and market regulation are highly demanding of public commitment and leadership. A shift from planned provision to a greater role for regulated markets in no way reduces the need for public leadership and management of the health care system as a whole – in fact the effect may be rather the contrary.

References

- Anand, S. and M. Ravallion (1993) 'Human development in poor countries: on the role of private incomes and public services' *Journal of Economic Perspectives* 7(1) 133-150
- Asiimwe D. (2003) "Private health care in Uganda: the poverty cycle explained" in Söderlund et al (2003)
- Ayres, I. and Braithwaite, J. (1992) *Responsive Regulation: Transcending the Deregulation Debate* Oxford: Oxford University Press
- Baldwin, R. Scott, C. and Hood C. (1998) 'Introduction' in (eds.) Baldwin, R. Scott, C. and Hood C. (1998) *A Reader on Regulation* Oxford: Oxford University Press
- Barr, N. (1998) *The Economics of the Welfare State* Third edition Oxford, Oxford University Press
- Barr, N. (1994) 'The role of government in a market economy' in Barr N. (ed.)(1994) *Labor Markets and Social Policy in Central and Eastern Europe* Oxford, Oxford University Press
- Barraza-Lorenz M. Bertozzi, S. González-Pier, E. and Gutiérrez, J.P. (2002) 'Addressing inequality in health and health care in Mexico' *Health Affairs* 21(3) 47-56
- Baru, R. V. (1998) *Private Health Care in India : Social Characteristics and Trends* Sage Publications New Delhi
- Bennett, S. Dakpallah, G. Garner, P. Gilson L. Nittayaramphong S., Zurita B. Zwi A. (1994) 'Carrot and stick: state mechanisms to influence private provider behaviour' *Health Policy and Planning* 9(1) 1-13
- Bennett, S. and McPake, B. and Mills A. (eds.) (1997a) *Private Health Providers in Developing Countries: Serving the Public Interest?* London, Zed Books
- Bennett, S. and McPake, B. and Mills A.(1997b) 'The public/private mix debate in health care' in Bennett et al (1997a)
- Besley, T. and Gouveia, M. (1994) 'Health Care' *Economic Policy* October
- Bhatt, R. (1999) 'Characteristics of private medical practice in India: a provider perspective' *Health Policy and Planning* 14(1) 26-37
- Bloom G. and Standing H. (2001) 'Pluralism and marketisation in the health sector: meeting health needs in contexts of social change in low and middle income countries' *Institute of Development Studies Working Paper* 136 Sussex
- Bokhari, F.A.S., Gai, Y. Gottret, P. (in press) 'Government health expenditures and health outcomes' *Health Economics* (in press)
- Borah,B.J. (2006) 'A mixed logit model of health care provider choice: analysis of NSS data for rural India' *Health Economics* 15 915-932
- Braithwaite, J. and Drahos, P. (2000) *Global Business Regulation* Cambridge University Press
- Carrin, G. Zeramdini, R, Musgrove, P., Pouiller J., Vaentine N., Xu Ke (2004) 'Impact of risk sharing on the attainment of health system goals' in Preker, A. and Carrin, G. (eds.) (2004) *Health Financing for Poor People: Resource Mobilization and Risk Sharing* Washington The World Bank
- Chaudhuri, S. (in press) 'The gap between successful innovation and access to its benefits: Indian pharmaceuticals' *European Journal of Development Research*
- Chaudhuri, S. (2005) *The WTO and India's Pharmaceutical Industry* Oxford University Press, New Delhi.
- Chu, K-Y, Davoodi, H. and S. Gupta (2004) 'Income distribution and tax and government spending policies in developing countries' in Cornia, G.A. (ed.) (2004) *Inequality, Growth and Poverty in an Era of Liberalisation and Structural Adjustment* Oxford, Oxford University Press
- Coelho Campino, A.C., Diaz, M.D.D., Paulani, L.M., de Oliveira, R.G., Piola, S., Nunes, A. (2001) 'Health system inequalities and poverty in Brazil' in PAHO (2001)
- Cornia, G.A. Jolly R. Stewart F. (1987) *Adjustment with a Human Face: Protecting the Vulnerable and Promoting Growth* Oxford, Clarendon Press
- Davoodi, H. Tiongson, E and S. Asawanuchit (2003) 'How useful are benefit incidence analyses of public education and health spending?' *IMF Working Paper* WP/03/227 Fiscal Affairs and Middle Eastern Department, International Monetary Fund November (accessed online www.imf.org February 2004).
- Demery, Lionel (n.d) 'Benefit Incidence Analysis' in *Tool Kit*, World Bank, Washington accessed online February 2004 http://poverty.worldbank.org/files/12925_chapter2.pdf
- Freedman, L. Waldman R. De Pinho H. Wirth M. (2005) *Who's got the power? Transforming Health Systems for Women and Children* UN Millennium Project Task Force on Child Health and Maternal Health, Earthscan, London

- Gauld, R. Ikegama, N. Barr, M.D., Chiang, T-L, Gould, D. Kwon, S. (2006) 'Advanced Asia's health systems in comparison' *Health Policy* 79 325-336
- Gilson L. (2003) 'Trust and the development of health care as a social institution' *Social Science and Medicine* 53 1457-1468
- Gilson, L and McIntyre, D. (2006) 'Removing user fees: the need for careful action' *British Medical Journal* 331: 762-765
- Gilson, L. Palmer N. and Schneider H. (2005) 'Trust and health worker performance: exploring a conceptual framework using South African evidence' *Social Science and Medicine* 61 (7) 1418-1429
- Gilson, L. and Mills, A (1995) 'Health sector reforms in sub-Saharan Africa: lessons of the last ten years' *Health Policy* 32 :215-243
- Green, A. (1999) *An Introduction to Health Planning in Developing Countries* Second edition Oxford, Oxford University Press
- Gwatkin, D. (2001) 'Poverty and inequalities in health within developing countries: filling the information gap' in Leon, D and Walt G. (eds.) *Poverty, Inequality and Health* Oxford, Oxford University Press
- Gwatkin, D. Wagstaff, A. and Yazbeck, A. S. (eds.) (2005) *Reaching the Poor with Health, Nutrition and Population Services What Works and What doesn't and Why*. Washington World Bank
- Hanson, K and Berman P. (1998) 'Private health care provision in developing countries: a preliminary analysis of levels and composition' *Health Policy and Planning* 13: 195-211
- Holly. A and Benkassmi, M (2003) 'Health and health care inequalities in Switzerland: a brief review of the literature' Paper prepared for the RUIG project on the Social Challenge of Development www.ruiq-gian.org
- Homades, N. and Ugalde, A. (in press) 'Improving access to pharmaceuticals in Brazil and Argentina' *Health Policy and Planning*
- Hongoro C. and Kumaranayake L. (2000) 'Do they work? Regulating for-profit providers in Zimbabwe' *Health Policy and Planning* 15(4) 368-377
- Hsiao, W. (1995) 'Abnormal economics in the health sector' *Health Policy* 32 125-139
- Iriart, C. (2005) 'The transnationalization of the health care system in Argentina' in Mackintosh and Koivusalo (2005)
- Jasso-Aguilar, R. Waitzkin H. and Landwehr A. (2005) 'Multinational corporations and health care in the United States and Latin America: strategies, actions and effects' in Mackintosh and Koivusalo (2005)
- Jayasinghe, K.S.A., de Silva, D., Mendis, N. Lie R.K. (1998) 'Ethics of resource allocation in developing countries: the case of Sri Lanka' *Social Science and Medicine* 47(10) 1619-625
- Kapiriri, L. Norheim, O.F., Heggenhougen, K. (2003) 'Public participation in health planning and priority setting at the district level in Uganda' *Health Policy and Planning* 18(2) 205-213
- Kaplan. W.A. and Laing, R.(2003) 'Paying for pharmaceutical registration in developing countries' *Health Policy and Planning* 18(3) 237-248
- Kikumbih, N. Hanson K., Mills A, Mponde H, Schellenberg J.A. (2005) 'The economics of social marketing: the case of mosquito nets in Tanzania' *Social Science and Medicine* 60 369-381
- Kiwara, A. (2000) 'Health sector reforms and alternative health care financing in Tanzania: windows of hope' Paper for the workshop on 'Managing and Regulating Mixed Health Care Systems' Dar es Salaam, April.
- Konaté M. K. and Kanté B. (2005) 'Commercialization of health care in Mali: Community Health Centres, fees for service and the rise of private providers' in Mackintosh and Koivusalo (2005)
- Kumaranayake, L. (1997) 'The role of regulation: influencing private sector activity within health sector reform' *Journal of International Development* 9(4) 641-9
- Kumaranayake, L. Lake S. Mujinja P. Hongoro C. Mpembeni R. (2000) 'How do countries regulate the health sector? Evidence from Tanzania and Zimbabwe' *Health Policy and Planning* 15(4) 357-367
- Kutzin, J. (2001) 'A descriptive framework for country-level analysis of health care financing arrangements' *Health Policy* 56 171-204
- Kwon, H and B. Tchoe (2005) 'The political economy of national health insurance in Korea' in Mackintosh and Koivusalo (2005)

- Laing, R.O. Hogerzeil, and Ross-Degnan D. (2001) 'Ten recommendations to improve the use of medicines in developing countries' *Health Policy and Planning* 16(1) 13-20
- Laurell, A.C. (2001) 'Health reform in Mexico: the promotion of inequality' *International Journal of Health Services* 31(2) 291-321
- Laurell, A.C., Zepeda, E Mussot, L. (2005) 'Eliminating economic barriers to health care: the Mexico City Government experience' in Mackintosh and Koivusalo (2005)
- Leon, D. and Walt G. (eds.) (2001) *Poverty, Inequality and Health: An international perspective* Oxford University Press
- Leonard, D. (ed) (2000) *Africa's Changing Markets for Health and Veterinary Services* London, Macmillan
- Lethbridge, J. 'Strategies of multinational health care companies in Europe and Asia' in Mackintosh and Koivusalo (2005)
- Lloyd-Sherlock, P. (2006) 'When social health insurance goes wrong: lessons from Argentina and Mexico' *Social Policy and Administration* 40 (4) 353-368
- Londoño, J.-L. And Frenk J. (1997) 'Structured pluralism: towards an innovative model for health system reform in Latin America' *Health Policy* 41 1-36
- Lu, J-f, Leung, G. Kwon, S., Tin, K, van Doorslaer, E. O'Donnell O (forthcoming) 'Horizontal equity in health care utilization : evidence from three high income Asian economies' *Social Science and Medicine*
- Mackintosh, M. (1995) 'Competition and contracting in selective social provisioning' *European Journal of Development Research* 7(1) 26-52
- Mackintosh, M. (1999) 'Informal regulation: a conceptual framework and application to decentralised mixed health care systems' in Mackintosh. M. and Roy R. (eds) 1999 *Economic Decentralization and Public Management Reform* Edward Elgar
- Mackintosh, M. (2001) 'Do health systems contribute to inequalities?' in Leon and Walt (2001)
- Mackintosh, M. and Koivusalo, M. (eds.) (2005) *Commercialization of Health Care: Global and Local Dynamics and Policy Responses* Basingstoke, Palgrave
- Mackintosh M. and Tibandebage, P. (2002) 'Inclusion by design? Rethinking health care market regulation in the Tanzanian context' *Journal of Development Studies* 39/1 1-17
- Mackintosh M and Tibandebage P (2007) 'Competitive and organizational constraints on innovation, investment and quality of care in a liberalized low income health system: evidence from Tanzania' *European Journal of Development Research* 19(1): 81-99
- Matin I. (n.d.) 'Targeted development programmes for the extreme poor: experiences from BRAC experiments' CPRC Working Paper No 20 Manchester accessed online 1 12 06 www.chronicpoverty.org
- McPake B. (1996) 'Public autonomous hospitals in Sub-Saharan Africa: trends and issues' *Health Policy* 35 155-177
- McIntyre D. Doherty J Gilson L. (2003) 'A tale of two visions: the changing fortunes of social health insurance in South Africa' *Health Policy and Planning* 18(1) 49-48
- Mendoza-Arana P. (2003) 'Potential of private practitioners to deliver public health services in Peru' in Soderlund et al (2003)
- Mills, A. Brugha R. Hanson K. and McPake B. (2002) 'What can be done about the private health sector in low income countries?' *Bulletin of the World Health Organization* 80(4) 325-330
- Mills, A. Bennett S., Russell S. (2001) *The Challenge of Health Sector Reform: What Must Governments Do?* Basingstoke, Palgrave
- Mirlees, J. (2005) 'Global public economics' in Atkinson, A.B. (ed.) (2005a) *New Sources of Development Finance* Oxford, Oxford University Press
- Mushtaque, A. Chowdhury, R, Alam, M.A., Ahmed, J. (2006) 'Development knowledge and experience: from Bangladesh to Afghanistan and beyond' *Bulletin of the World Health Organization* 84 677-681
- Nakamba, P. Hanson, K and McPake B. (2002) 'Markets for hospital services in Zambia' *International Journal of Health Planning and Management* 17 229-247

- Narayana, K. (2003) 'The role of the state in the privatisation and corporatisation of medical care in Andhra Pradesh, India' in Sen, K. (ed.) *Restructuring Health Services: Changing Contexts and Comparative Perspectives* London, Zed Books
- Nelson R. and S. Winter (1982) *An Evolutionary Theory of Economic Change*, Cambridge Ma., Harvard University Press.
- O'Donnell, O., van Doorslaer, E and 23 others (2005a) 'Who pays for health care in Asia?' *EQUITAP Project Working Paper No 1* www.equitap.org accessed 24.10.06
- O'Donnell, O., van Doorslaer, E and 16 others (2005b) 'Who benefits from public spending on health care in Asia?' *EQUITAP Project Working Paper No 3* www.equitap.org accessed 27.10.06
- Ogunbekun, I. Ogunbekun A. Orobato, N. (1999) 'Private health care in Nigeria: walking the tightrope' *Health Policy and Planning* 14(2) 174-181
- PAHO (Pan American Health Organization) (2001) *Investment in Health: Social and Economic Returns* Scientific and Technical Publication No.582, PAHO, Washington DC
- Parker S. and Gonzalez Pier, E. (2001) 'Health system inequalities and poverty in Mexico' in PAHO (2001)
- Pearson, M. (2004) *Issues paper: the case for abolition of fees for primary health services* DFID Health Systems Resource Centre London
- Preker, A and G Carrin (eds) (2004) *Health Financing for Poor People : Resource Mobilisation and Risk Sharing* Washington: World Bank
- Peters, D. Rao K.S and Fryatt, R. (2003) 'Lumping and splitting : the health policy agenda in India' *Health Policy and Planning* 18(9) 249-260
- Rannan-Eliya, R.P. Jayawardhane, P. Karunaratne, L. (2003) 'Private primary care practitioners in Sri Lanka' in Yazbeck and Peters (2003)
- Rawlings L. and Rubio T. (2003) 'Evaluating the impact of conditional cash transfer programmes': Lessons from Latin America *Policy Research Working Paper* 3119 Latin American and Caribbean Region, World Bank, Washington
- Rhode, J.E. 'BRAC- learning to reach health for all' *Bulletin of the World Health Organization* 84 (8) 682-3
- Russell, S and Gilson, L. (2006) 'Are health services protecting the livelihoods of the urban poor in Sri Lanka? Findings from two low-income areas of Colombo' *Social Science and Medicine* 63 1732-1744
- Save the Children (2005) *The Unbearable Cost of Illness: Poverty, Ill Health and Access to Healthcare – Evidence from Lindi Rural District, Tanzania* London Save the Children
- Saltman, R. (2006) 'Regulating incentives: the past and present role of the state in health care systems' *Social Science and Medicine* 54 1677-1684
- Sen, K. and Mehio-Sibai A. (2005) 'The dynamics of commercial health care in the Lebanon' in Mackintosh and Koivusalo (2005)
- Segall, M. et al (2000) 'Health care seeking by the poor in transitional economies: the case of Vietnam' *IDS Research Reports* No 43, Sussex, IDS
- Singh, A. (in press) 'Strengthening health systems to meet MDGs' *Bulletin of the World Health Organization*
- Söderlund, N. Mendoza-Arana P. and Goudge J. (eds.) (2003) *The New Public Private Mix in Health: Exploring the Changing Landscape* Alliance for Health Policy and Systems Research, Geneva
- Stenson, B. Thomson, G. and Syhakhang, L (1997) 'Pharmaceutical regulation in context: the case of the Lao People's Democratic Republic' *Health Policy and Planning* 12(4) 329-340
- Suárez-Berenguela, R M. (2001) 'Health system inequalities and inequities in Latin America and the Caribbean' in PAHO (2001)
- Thomas S. and Gilson L. (2004) 'Actor management in the development of health financing reform: health insurance in South Africa 1994-1999' *Health Policy and Planning* 19(5) 279-291
- Tibandebage, P (1999) 'Charging for health care in Tanzania: official pricing in a liberalised environment' in Mackintosh, M. and Roy, R. (eds.) (1999) *Economic Decentralization and Public Management Reform* Edward Elgar, Aldershot
- Tibandebage P. and Mackintosh M. (2005) 'The market shaping of charges, trust and abuse: health care transactions in Tanzania' *Social Science and Medicine* 61: 1385-1395

- Tirole, J. (1994) 'The internal organisation of government' *Oxford Economic Papers* 46 1-29
- Tu, Nguyen Thi Hong, Huong, Nguyen Thi Lien, and Diep, Nguyen Bich (2003) 'Globalisation and its effects on health care and occupational health in Vietnam' www.unrisd.org and www.DSD-RUIG.org
- Tuan, Tran, Van Thi Mai Dung, Neu, I, and Dibley M.J. (2005) 'Comparative quality of private and public health services in rural Vietnam' *Health Policy and Planning* 20: 319-327
- Valvidia M. (2002) 'Public health infrastructure and equity in the utilisation of outpatient health services in Peru' *Health Policy and Planning* 17 (Supp 1) 12-19
- van Doorslaer and 23 others (2005) 'Paying out of pocket for health care in Asia: catastrophic and poverty impact' *EQUITAP Project Working Paper No 2* www.equitap.org accessed 27.10.06
- van Doorslaer, E. and 20 others (2000) 'Equity in the delivery of health care in Europe and the US' *Journal of Health Economics* 19 /5 553-583
- Wagstaff, A. (in press) 'Health systems in East Asia: what can developing countries learn from Japan and the Asian Tigers?' *Health Economics*
- Wagstaff, A. (2002) 'Inequalities in health in developing (countries: swimming against the tide?)' *Policy Research Working Paper 2795* World Bank, Washington
- Wagstaff, A. and 25 others (1999) 'Equity in the finance of health care : some further international comparisons' *Journal of Health Economics* 18 263-190
- Withanachchi, N. and Uchida, Y. (2006) 'Health care rationing: a guide to policy directions in Sri Lanka' *Health Policy* 78 17-25
- World Health Organization (WHO)/ Ecumenical Pharmaceutical Network (EPN) 2006 *Multi Country Study of Medicine Supply and Distribution Activities of Faith Based Organisations in Sub-Saharan Africa* WHO/EPN Geneva
- Xu K. Evans P. Kadama P. Nabyonga, J. Ogwal, P.O. Nabukhonzo, P. Aguilar A.M. (2006) 'Understanding the impact of eliminating user fees: utilization and catastrophic health expenditures in Uganda' *Social Science and Medicine* 62 866-879
- Yazbeck, A. and Peters, D.H. (eds.) (2003) *Health Policy Research in South Asia: Building Capacity for reform* World Bank, Washington

Appendix: Further figures and tables

Figure 1 : Private as % total health expenditure is negatively associated with national income per head

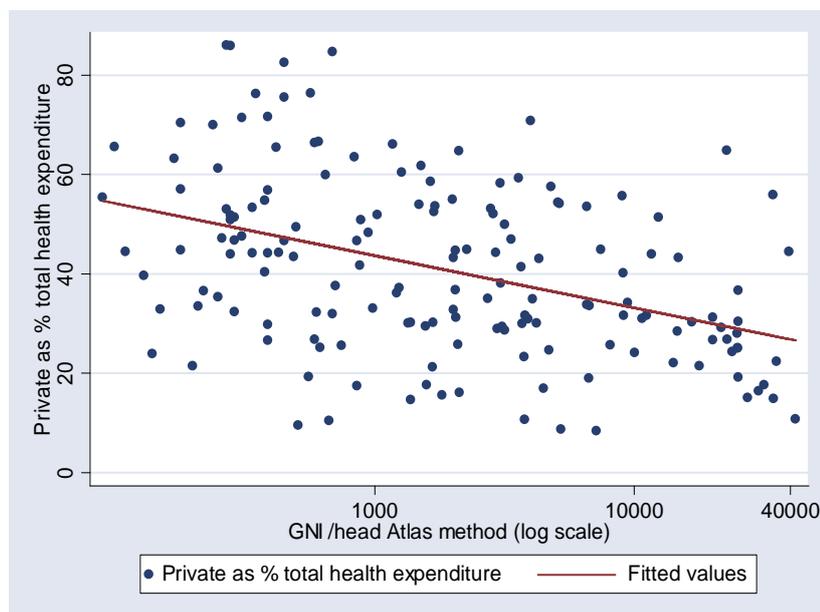


Figure 2: Reliance on out-of-pocket spending is negatively associated with national income per head

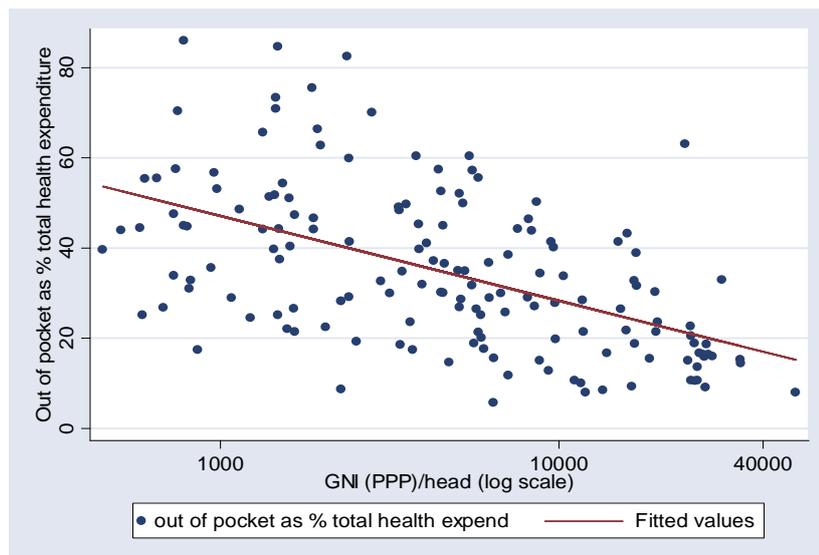


Figure 3 : Healthy life expectancy plotted against GNI/head, selected countries marked

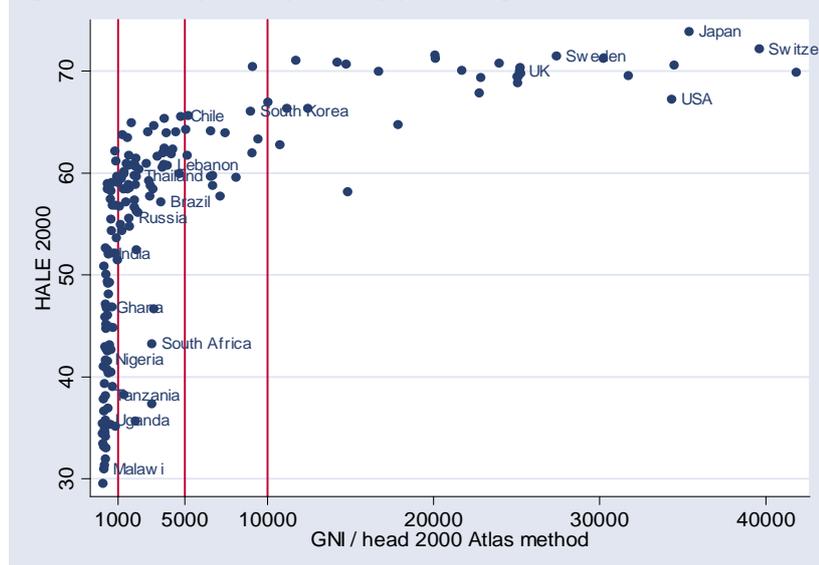


Table 1: correlation matrix: HALE, child mortality and GNI/head (Atlas exchange rate and PPP methods) (correlation coefficients)

Variable	Healthy life expectancy	Child mortality
Health life expectancy	1.00	-0.93
Child mortality	-0.93	1.00
GNI/head (Atlas*)	0.63	-0.47
GNI/head (PPP**)	0.70	-0.57
Log GNI/head (Atlas)	0.84	-0.77
Log GNI/head (PPP)	0.85	-0.80

Notes: 160 countries

*: using market exchange rates

** purchasing power parity

** purchasing power parity

Table 2 Healthy life expectancy (HALE) regressed on log GNI/head (Atlas method), the public/private expenditure mix indicators, and a dummy variable for Sub-Saharan Africa

Independent variable	Coefficient	t	P
Log GNI/head (PPP basis)*	5.381	11.93	0.000
Govt. /soc. ins as % total health expenditure**	-0.892	-1.82	0.070
Govt./ social ins. health expenditure as % GDP**	0.827	1.96	0.052
Private health expenditure as % GDP**	-0.793	-1.83	0.069
SSA dummy*	-12.737	-14.5	0.000
Constant*	17.842	4.01	0.000

160 countries; $R^2=0.88$

* significant at 1% level **significant at 10% level

Table 3: Probability of dying before 5 years regressed on log GNI/head (Atlas method), the public/private expenditure mix indicators, and a dummy variable for Sub-Saharan Africa

Independent variable	Coefficient	t	p
Log GNI/head (PPP basis)*	-30.170	-9.36	0.000
Govt. /soc. ins as % total health expenditure	-0.218	-0.62	0.534
Govt./ social ins. health expenditure as % GDP	3.522	1.17	0.245
Private health expenditure as % GDP	-0.301	-0.10	0.923
SSA dummy*	78.421	12.19	0.000
Constant*	31.837	9.29	0.000

160 countries; $R^2=0.81$

* significant at 1% level

ⁱ **Acknowledgements:** this paper draws extensively on research undertaken jointly with Meri Koivusalo and with the network of researchers in the UNRISD project on *Commercialisation of Health Care: Global and Local Dynamics and Policy Initiatives* (Mackintosh and Koivusalo 2005), and also on joint research with Paula Tibandebage. This paper remains the sole responsibility of the author, and does not reflect the policies and practices of the funding bodies for those projects, UNRISD and DFID.

ⁱⁱ A search of the health journals for the words 'health' and 'planning' turns up, once references to family planning are removed, mainly publications from the 1980s and before.

ⁱⁱⁱ www.dh.gov.uk/policyandguidance accessed 21.11.06

^{iv} Utility regulation is widely analysed using this model (Helm 1994).

^v For example Kapiriri et al (2003)

^{vi} While *not* referring to incentive design within public services as 'regulation'.

^{vii} I owe this data set to the work of Seife Ayele.

^{viii} For the limitations of this approach to measurement see Section 3.3.

^{ix} WHO data online for 2000 (www.who.int/whosis), and *World Development Indicators* online (www.worldbank.org).

^x A judgement supported immediately below and in Sections 3.3 and 4.2.

^{xi} 163 countries; regression of private as % of total health expenditure on log GNI/head (Atlas method); coefficient is negative and significant at 1% level, $R^2=0.17$; the negative association is strengthened using PPP data for GNI/head: $R^2=0.23$.

^{xii} 155 countries; coefficient is significant at 1% level; horizontal axis log scale; regression x variable is log GNI per head (PPP), $R^2=0.285$; result unaltered using Atlas method exchange rate data for GNI/head. On the consequences of out of pocket payment see further below.

^{xiii} 155 countries; the coefficient is highly significant on both measures of GNI/head; note that the rich countries lie predominantly above the regression line; an additional dummy variable for rich countries is also significant.

^{xiv} 155 countries; no significant relationship between the variables; the use of GNI/head (Atlas method) data does not change the result.

^{xv} A new data set drawn from a variety of sources, collected by Seife Ayele.

^{xvi} Source *Demographic and Health Surveys* (DHS); data accessed online www.worldbank.org. This analysis was done in 2003 before a 45th country was added to the online data; see also note 17.

^{xvii} An earlier version of this paper used summaries of the DHS data from the World Bank site available in 2003; some of these data have recently been shown to be ambiguous in presentation of the public/private split in ambulatory care. Some analysis has therefore been removed from this paper, after the data summaries were revised

by the Bank; this analysis is now being reworked using the original DHS household data sets. The summary data on place of birth of babies did not suffer from this ambiguity, and is retained here.

^{xviii} Removing the dummy for Sub-Saharan Africa sharply reduces the significance of all but the income variable in the regression with HALE and does not change the results of the child mortality regression.

^{xix} Diagnostic plots demonstrate that the weak associations found for HALE reflect only a few ‘outlier’ countries.

^{xx} Allowing for endogenous determination of both government health spending and income within the model.

^{xxi} Evolutionary industrial economics (Nelson and Winter 1982) could with profit be more widely applied in the health services sector to assist regulatory strategy.

^{xxii} Information from continuing research by Phares Mujinja, Sudip Chaudhuri and the author in Tanzania.

^{xxiii} In the sense of horizontal equity : equal treatment for equal need; see Section 4.

^{xxiv} This paragraph draws on current unpublished research with Phares Mujinja and Sudip Chaudhuri.

^{xxv} This term is defined below.

^{xxvi} CHIs are not explored in detail in this paper.

^{xxvii} The sources reviewed use a variety of measures of inequality but increasingly the methods used in Wagstaff et al 1999 and van Doorslaer et al 2000 appear to be accepted as standard(see O’Donnell et al 2005a,2005b;PAHO 2001;van Doorslaer et al 2005 among others).

^{xxviii} Data on this point for Brazil and Mexico, included in the broader study, were missing.

^{xxix} Again there are exceptions which appear to include Chile – see below.

^{xxx} Information from fieldwork with Richard Biritwum and Kwadwo Mensah.

^{xxxi} Source: fieldwork with Paula Tibandebage 1998.

^{xxxii} www.brac.net accessed 1.12.06

^{xxxiii} D.Narayana personal communication.

^{xxxiv} This is the object of current research by the author with Phares Mujinja and Sudip Chaudhuri.