

# Contracting for health services: an evaluation of recent reforms in Nicaragua

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Nicaragua has embarked on a reform of the way in which publicly provided medical care is organized and financed. A principal feature of the reforms includes a decentralization of decision-making authority coupled with an increase in local accountability. Local decision-making authority has been increased by allowing managers more freedom to allocate inputs. Accountability has been strengthened by stipulating what is expected of hospitals and health centres in the form of performance agreements, and tying rewards (i.e. bonuses) to the satisfaction of these requirements provides incentives. This paper provides a critical assessment of these reforms, and presents some early evidence of their effects.

**Key words:** health care reform, contracting out, physician incentives, Nicaragua

## 1. Introduction and overview

Widespread dissatisfaction on the part of consumers of health care, coupled with government frustration at the lack of quality services that could be purchased with available funds, have led to an overhaul of the organization and financing of health care in Nicaragua. These reforms, which are at an early pilot stage of implementation, have sought to replace opaque budgeting procedures and ineffectual accountability mechanisms with more efficient financing arrangements and higher-powered incentives, through the formulation of explicit contractual agreements and the reallocation of authority. This paper examines the nature of the reforms and their likely effects from a micro-economic perspective, concentrating on an analysis of the mechanisms through which incentives are generated.

This first section provides an overview of the sector and the reforms. The following two sections form the main body of the paper. Section 2 examines critically the hospital performance agreements piloted in six hospitals and municipalities, and Section 3 presents information and some indicative evidence on trends in the autonomy of municipalities, using data from one province in Nicaragua. Section 4 discusses four further issues in decentralization policy in Nicaragua, including macro-economic control and local revenue retention, contracting with non-governmental organizations (NGOs), a comparison with education decentralization, and the idea that health centres can be used for poverty targeting. Section 5 briefly concludes.

Health care services in Nicaragua are provided through the Ministry of Health (MINSA), private contractors (*empresas*) to the social security system (INSS), and non-governmental organizations. MINSA is the primary provider, officially covering about 70% of the population. It provides services directly through its public hospitals, and through health centres that are under the supervision of provincial administrative units called SILAIS.<sup>1</sup> INSS, which covers formal sector workers, finances care for about 10% of the

population, although some of this is provided through MINSA hospitals (on a fee-for-service basis). NGOs provide services mainly in under-served rural areas.

Nicaragua's health sector strategy, supported by the World Bank and the Inter-American Development Bank (IDB), aims amongst other things to improve the administration, management and financing of the health system, as well as increasing investment in infrastructure and equipment. A central element of the reorganization of the system involves changing the nature of the relationships between MINSA on the one hand, and the public hospitals and SILAIS on the other. To this end, six hospitals<sup>2</sup> and six SILAIS are taking part in a pilot programme – as part of a broader 'Health sector modernization project' – that introduces new elements of decentralization, contracting and financing.

Over the last 10 years Nicaragua's health system has been transitioning from the socialist model implemented under the Sandinista regime of the 1980s and early 1990s. During this time, successive governments have adopted generally more market-focused economic policies across most sectors. In the health sector, these policy changes have taken the form of increased private sector activity, and the decentralization of publicly provided services.<sup>3</sup>

Previously, budgeting arrangements in Nicaragua's health system were difficult to rationalize and unresponsive to changing needs and costs. Typically hospitals and health units would be financed on an historical basis. That is, the budget for a given year would be simply related to the previous year's budget, with adjustments only for inflation. This kind of budgeting rule is only appropriate if (a) the initial allocations within the health sector, and the initial sectoral allocation, are optimal, and (b) if the relative needs (demographic, epidemiological, etc.) and costs do not change over time.

Not only did funding not respond to shifts in exogenous needs and costs (which might be argued to change slowly in any case), perhaps more importantly, it did not respond to

endogenous performance of actors in the system. That is, the previous budgetary system provided little in the way of incentives for SILAIS, health unit and hospital administrators to improve their performance, because future funding was a function of past funding, not past performance.

Although the past performance of the health system is perceived by health care providers and administrators to have been poor, it is not clear whether this has been due to (a) simple lack of resources (in terms of generally low GDP and in terms of a lack of specific resources, including many medical professionals who left the country during the Sandinista period<sup>4</sup>); (b) incompetence, weak information systems and poor management, i.e. institutional capacity constraints, or (c) strategic manipulation by self-interested actors. The first category of factors is more a matter of broad-based economic growth and political stability, as opposed to a health policy question. The third set of factors could include absenteeism or rudeness of staff, neglect of regular maintenance by managers and outright corruption. Elements of each source of inefficiency seem to be present. For example, MINSA officials cite of a lack of information about the flow of funds under the previous system, but also claim poor motivation and responsiveness on the part of providers and local administrators. The modernization project aims to improve incentives by first tracking the flow of funds more closely and secondly tying financial rewards (and sanctions) to how the funds are used. As a practical matter, the organizational changes in the health sector can be seen as representative of the budget execution reforms likely to be required in the HIPC process.<sup>5</sup> In either case, whether previous poor performance was due to lack of capacity or lack of incentives, it is hoped that putting explicit incentives in place will have beneficial effects.

Thus a central feature of the modernization project is the development and implementation of performance agreements, which are contracts signed between MINSA and hospitals, or between MINSA and health centres. These contracts specify certain actions to be taken, goals to be achieved and funds available at the facility level. As they are negotiated annually, they are in principle responsive to changing local conditions. In addition, the level of funding specified in the contract is responsive to measures of local performance (see below), so the agreements provide some kind of incentives.<sup>6</sup>

Other countries in Latin America, and elsewhere, have experimented with explicit contracts for medical services, in the hope of improving quality, access, cost-efficiency or combinations thereof. For example, Abramson (2001) reports on the purchase of health services by the Costa Rican Social Security Fund (CCSS) from the Costa Rican Co-operative, COOPESALUD, and finds that while the contractual arrangement is one of the more advanced in the region, its ability to deliver strong incentives to providers is limited because of the lack of quantifiable performance data. In this example there seems to be a disconnect between contractually specified tasks and financial incentives for performance of these tasks.

Indeed, credible monitoring of contractual obligations

appears to have been a recurring source of frustration with the public purchase of health services. For example, Mills (1997) observed that many contracts, while careful about defining what was to be delivered, were mute on the specification of monitoring and accountability mechanisms. Similarly, Mills (1998) found that in a range of countries in Africa and Asia, responsibility for supervision and monitoring was left unspecified in contractual arrangements. This paper thus examines both the terms of service provision contracts and explicit accountability mechanisms that have been simultaneously developed.

Performance incentives are thus provided from the top down under the reformed system (in the pilot hospitals and health centres). To be effective, such incentive mechanisms require monitoring and information systems, which have been expanded under the SIGFA (Sistema Integral de Gestión Financiera Administrativa y Auditoria) program, a computer-based system for tracking the flow of public funds in all sectors. This increased monitoring capacity has given, or at least has been perceived to give, the central government increased control over how resources are used.

In a sense then, the reforms have been less about decentralization of authority (although some autonomy has been granted to hospitals), and more about the formalization of incentives through accountability mechanisms negotiated in advance between the central government and facilities. On the other hand, the reforms, and in particular the performance agreements, have made local decision-makers more aware of the consequences of their decisions. For example, in principle the new funding arrangements impose the full financial cost of electricity, water, fuel and telecommunications costs on local managers. The costs of these services, instead of being paid directly by MINSA (or Ministry of Finance, MHCP), will be financed out of cash budgets allocated to the unit.

While contracts are signed between providers (hospitals and health centres) and MINSA, there is some decentralized monitoring. MINSA reserves the role of monitoring hospital performance, but the SILAIS is required to monitor the performance of health centres. However, the accountability of the SILAIS is upward, to MINSA, rather than to local communities. The SILAIS should be seen then as administrative branches of MINSA, and not politically accountable local institutions.

One institution that can potentially provide accountability from below, by linking hospitals and SILAIS to local communities, is the Consultative Council (CC), consisting of civic representatives. CCs have existed in Nicaragua for many years, although they have not been a constant presence. Part of each performance agreement stipulates the need to have in place a functioning CC. Each public hospital is thus expected to have an associated CC. At the primary care level, although formally MINSA has contracts directly with health centres, obvious scale economies in administration have led to the requirement that each SILAIS (i.e. each province) has an associated CC.

However, the members of the CCs are approved by MINSA, so their independence must be assumed to be somewhat limited. Also, they do not exercise any disciplinary action over providers, but rather act as channels of communication between them and consumers/patients. Indeed, there is two-way traffic: not only are community preferences transmitted to providers, but hospitals and health centres have traditionally approached CCs for help in financing small-scale investments (such as photocopiers and other office equipment).

**2. Hospital performance agreements**

Each year, a performance agreement is negotiated between MINSA and the pilot hospitals. Although MINSA negotiates separately with each hospital, in practice all six pilot hospitals sign the same contract. This immediately suggests that bargaining power at the negotiation stage is likely to be skewed in favour of MINSA, which is in a position to play the individual hospital management teams off against each other, unless they can cooperate amongst themselves in presenting a unified position. From a strategic point of view, this could be the reason MINSA conducts separate negotiations with the hospitals, instead of allowing hospitals to bargain cooperatively.

The simple idea of the performance agreements is that certain actions on the part of hospitals lead to higher payments. Performance is measured using four categories of actions: production of services, organization, management and quality. Each category has a number of components, examples of which are given in Table 1. For each component of each category, a goal is set in the contract and a maximum number of points specified. Achievement of the goal is monitored and points are assigned to a hospital accordingly.

Some of the goals are binary, i.e. a requirement is either satisfied or is not (e.g. a management plan is written), while others are measured on a more graduated scale (e.g. the number of patients admitted). For the first kind, hospitals receive either full points or none, but for the second they can receive partial credit. The points are aggregated across components within categories, each categorical total is weighted, and the four weighted totals are aggregated into a final score, *s*. That is, if *s<sub>ij</sub>* is the number of points awarded for component *j* of category *i*, then the hospital's total score is

$$s = \sum_{i=1}^4 \omega_i \left( \sum_j s_{ij} \right)$$

The categories 'production of services' and 'management' each receive a weight of 20%, while the other two categories receive 30% each. Component points are normalized so that the highest possible score is 100.

Measuring compliance with the targets is easy in some cases (e.g. when the target is a number of admissions), but difficult in others (e.g. when the quality of patient complaint mechanisms needs to be ascertained). These measurements or audits are made independently by MINSA and by an independent outside consultant, although clearly they rely on hospitals to provide verifiable information.

As noted above, the reforms aim to improve the incentives of poorly paid and unmotivated providers. In this context, each hospital has a separate fund from which bonuses can be paid to personnel. The bonuses can be paid as a cash supplement to wages, or in the form of a local public good amongst the members of a particular hospital team, for example in the form of improved staff amenities.<sup>7</sup> As in any organization, one expects that finely differentiated financial awards across staff, if visible, could be detrimental to incentives.

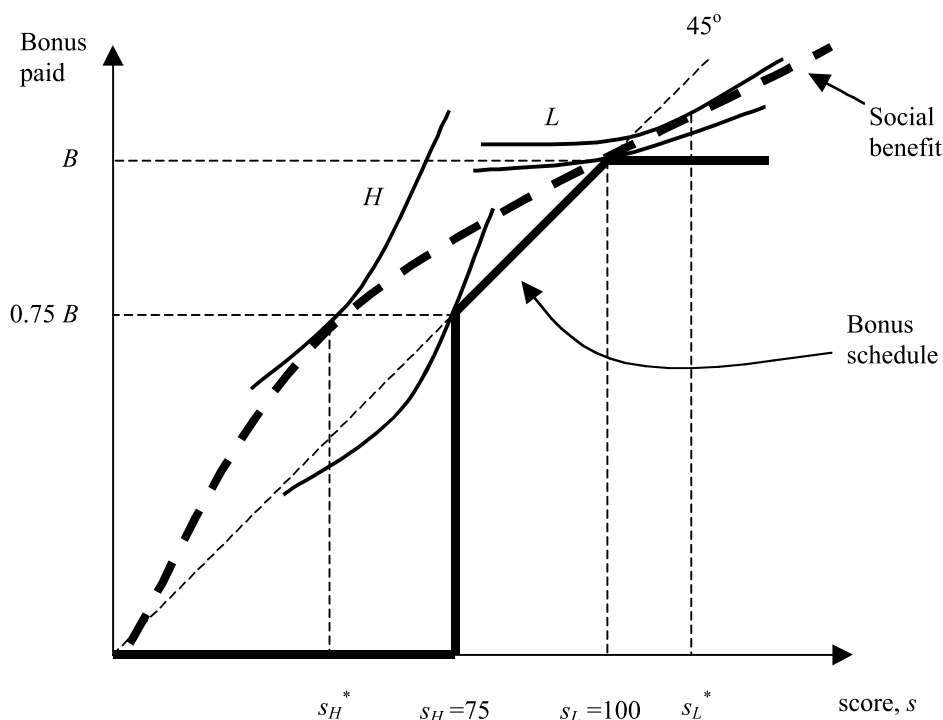
In practice, there is a fixed amount *B* that can be awarded. If the hospital's score is less than 75%, no bonus is paid, but for scores above this threshold, the hospital receives *s*% of *B*. That is, if the score is *s*, the bonus paid is *sB*/100. This schedule is shown as the bold curve in Figure 1. There is clearly a strong incentive at the hospital level to reach the 75% threshold, conditional on being near it, as the bonus jumps from zero to 0.75*B* as the threshold is crossed. Conversely, there is no incentive to increase performance above the 100% limit, say by exceeding the targets set out in the performance agreement.<sup>8</sup>

If it were possible to interpret the score, *s*, as a measure of hospital output, then in the range 75 < *s* < 100, a hospital is paid at a rate of *B*/100 per unit of output. Outside this range, the hospital gets paid nothing for additional units. One way to judge whether this is a 'good' scheme is to compare it with a theoretical social optimum. Such an optimal scheme would induce a hospital to produce output (i.e. points) up to the point at which the marginal social cost of producing another unit is equal to the marginal social benefit (assuming convexity). This can be guaranteed as long as two conditions are satisfied: first, the hospital must face the full social costs of the inputs it uses; and secondly, it should be paid an amount per unit equal to the marginal social benefit of output at the optimum. As long as the first condition is satisfied, the second

**Table 1.** Performance categories and sample components for performance agreements between MINSA and hospitals

Performance category	Weight (%)	Example of component
Production of services	20	Number of inpatients, as compared with average of previous 3 years
Organization	30	Establishment of medical departments
Management	20	Explicit formulation of a management plan
Quality	30	Rates of complaints, re-infection, etc.

Source: MINSA officials.



**Figure 1.** Hospital bonus schedule and social benefit (High-cost hospitals will comply minimally with the contractual terms, and low-cost hospitals comply fully.)

can be assured by paying the hospital an amount equal to the social benefit of output. It is natural to assume the social benefit of output is a concave function of output, such as illustrated by the dashed curve in Figure 1. The bonus scheme performs well if it reasonably matches the shape of the social benefit curve.

To illustrate the importance of properly calibrating the bonus scheme, we can consider two alternative situations. In both cases the cost of producing a point is increasing at the margin, but is uniformly lower in the first case than the second. This means that the trade-off between points and bonus (costs and benefits) that a hospital faces is flatter in the first case than in the second, as illustrated by the two sets of indifference curves in Figure 1 (marked  $L$  for low cost, and  $H$  for high cost). A hypothetical social benefit curve is also depicted, with the associated optimal outputs for each type of hospital (labeled  $s_L^*$  and  $s_H^*$ , respectively).

Under the actual bonus scheme implemented, hospitals with low costs choose to comply fully with the contractual requirements, i.e. they get a score of  $s_L = 100$ , but high-cost hospitals choose to comply minimally, i.e. scoring only enough to ensure they get some bonus,  $s_H = 75$  points. (It is clearly possible to specify an intermediate cost level that leads to a hospital choosing a point score between 75 and 100.) The bonus scheme can be thought to work well if  $s_L$  is close to  $s_L^*$ , and  $s_H$  is close to  $s_H^*$ . According to this criterion, the *shape* of the bonus scheme cannot be said, at least qualitatively, to be wildly inappropriate, as it rewards hospitals at a relatively high marginal rate at low output levels, but at a smaller (zero) rate at higher output levels. However, given

the difficulty of estimating the true underlying social benefit curve in Figure 1, it is always going to be difficult to choose the right *scale* for the bonus scheme. This scale is determined by the budget assigned for the bonus,  $B$ .

However, a further aspect of the budgeting process that makes interpretation of the bonus scheme, and estimates of its effects, difficult is that the maximum bonus represents, on average, only 17% of hospital funds (MINSAs). Many costs such as energy and utilities were traditionally financed directly from MHCP, via MINSAs, so that hospitals rationally perceived the opportunity cost of using these inputs as zero. Even though some of these price distortions have been removed, it seems likely that the opportunity cost of producing 'a point', as perceived by a hospital, will be different to the actual resource cost. In order to provide incentives to generate points, the effective price paid under the bonus scheme must bear a relationship to the marginal opportunity cost incurred by the hospital, not the actual resource cost. The former is a function both of the physical production process and the rules governing the other ways in which central funds are allocated.

This discussion is predicated on the assumption that a point is a meaningful measure of output. However, it is clear from the definitions of the four categories and their relative weighting that at least half of each point, on average, represents a measure of inputs, or processes. At a general level then, the scheme represents a subsidy for the use of certain inputs (management and organizational), combined with a subsidy for the provision of certain outputs (provision of services and quality thereof).

A question that immediately arises is: why should the central government, through MINSAs, guide or interfere with the input choices of hospitals? That is, why is it not sufficient for MINSAs to purchase services (and quality) from the hospitals directly, while allowing the hospital managers to choose how to organize production? A simple answer would be that hospital managers do not understand the production process, in terms of the impact of managerial and organizational reforms, although this seems to be unlikely.<sup>9</sup>

A more plausible reason might be that it is difficult for hospital managers to change the way hospital staff work. Since most staff remain civil servants, and are afforded labour market protections under their terms of employment, their resistance to change could be strong (even if it is misplaced). The bonus payment, which is distributed amongst workers according to their participation in the reform, then acts as a carrot that the manager can offer his/her subordinates, and less as a financial incentive to the hospital management itself.<sup>10</sup>

This clearly suggests that greater managerial autonomy and more flexible labour market policies could substitute for the input-based part of the bonus/subsidy. The bonus is likely to be much easier to implement, and much less politically sensitive, although its sustainability could be brought into question. The question of hospital autonomy has been addressed within the modernization reforms along other dimensions, to which we now turn.

### 3. Hospital and SILAIS autonomy

Prior to the recent reforms, MINSAs exercised *formal* control over many aspects of hospital level decision-making. This meant that local hospital managers had little authority or incentive to adjust input mixes or otherwise rationalize resource use in accordance with local needs or costs. On the other hand, there is a perception amongst the central government bureaucrats that the *actual* level of central control over the use of resources was very small, and that MINSAs had little information about how funds were being spent. Thus some officials in the centre have seen the modernization reforms as a means of increasing real central control over the flow and use of resources.

Can both of these assertions be made consistently – that is, that there was at once too much and too little central control over the allocation of resources? The answer is yes if we consider a large enough array of inputs. For example, central financing (i.e. control) of oil, electricity and telephone services meant that local managers had little incentive to use these resources rationally. On the other hand, the outputs of local actions were not monitored, so that incentives for efficient and high quality provision were difficult to impose from above. With little in the way of local accountability, especially in the aftermath of the Sandinista period, dimensions along which local decisions could be made were unchecked.

One way to understand this situation is to think of a standard agency problem with moral hazard, in which a hospital

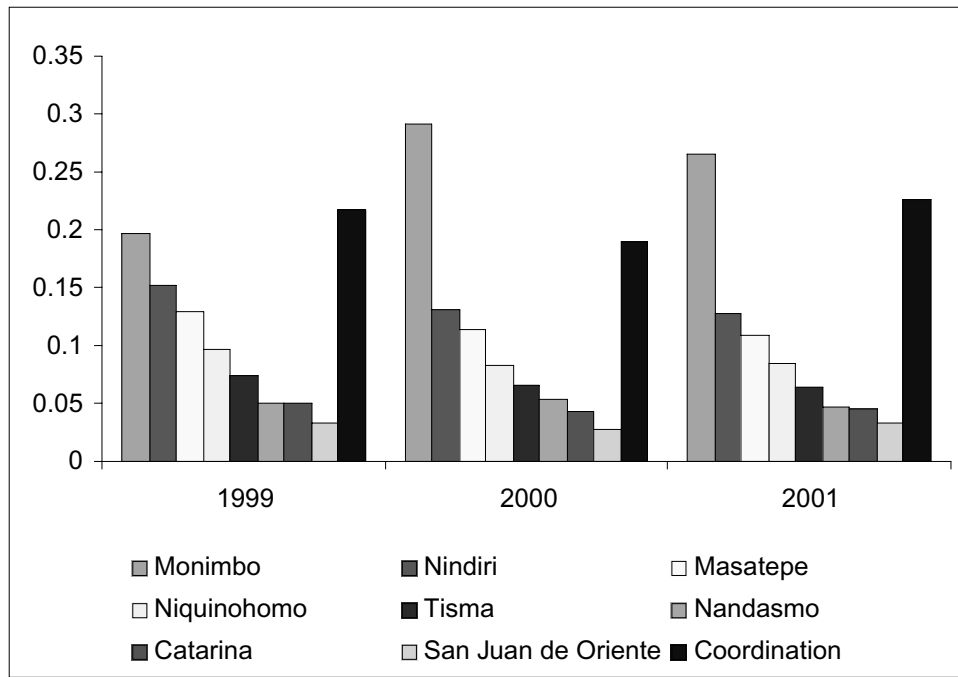
administrator must exert (managerial) effort in order to produce an outcome (e.g. health services). In addition to this personal effort, the hospital administrator uses other inputs. If the administrator can choose amongst these inputs, s/he must have the means for reallocating financial resources, in order to pay suppliers of the different inputs different amounts. But an agent with control over financial resources, and exposed to little in the way of monitoring or scrutiny, might use the money not only to purchase inputs, but also to line his/her pockets, or those of others, by way of preferential contracting. One way to control this corruption is to limit the administrator's control over financial resources, but this means removing their authority to alter the mix of purchased inputs.<sup>11</sup> Thus direct central control of some inputs might have been a substitute for a more sophisticated incentive mechanism that could be designed to induce good performance. The performance agreement is an attempt to move away from direct control to an indirect mechanism, in which managers have more autonomy, but are also more accountable.

Figure 2 presents data from 1999–2001 on the allocation of resources amongst health centres, and the coordinating SILAIS, in Masaya Province.<sup>12</sup> Apart from a jump in the share of funds allocated to Monimbo municipality, there appears to be little movement in the pattern of financing in the province over the 3-year period.

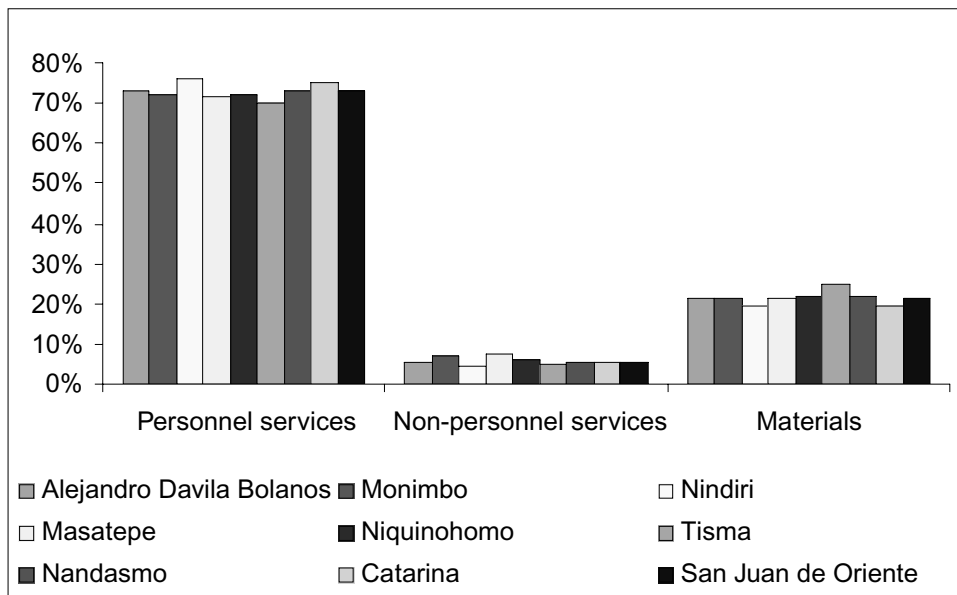
Of perhaps more interest is an analysis of the way in which funds are utilized at the municipality level. Figure 3 shows the breakdown of budget allocations by expenditure category for the health centres in Masaya province in 1999, suggesting relatively constant shares across health centres. (Even within the categories shown, the health centres were given individual budgets for telephone, water, electricity, etc., which also showed little variation across centres.) However, data from 1999 to 2001 suggest that municipalities may be responding to gradually increasing autonomy. Table 2 presents information on changes in the share of municipal spending devoted to personnel over the 3 years. Between 1999 and 2000, the mean change in the share of each municipality's spending on personnel was just –0.03 percentage points, and between 2000 and 2001 the mean share declined by 2.6 percentage points. The variance of these changes across municipalities fell slightly from 0.00148 to 0.00104. An F-test confirms that the change from 1999/2000 to 2000/2001 in the variance of the annual changes in personnel shares was not significant at the 5% level.

However, when Monimbo municipality is taken out of the sample, the increase in variance from 1999/2000 to 2000/2001 becomes significant at the 1% level (last column). Monimbo saw large changes in its share of provincial funding, which increased from 19.7% in 1999 to 29.1% in 2000, only to fall back to 26.6% in 2001 (Figure 2). Excluding this outlier, our results suggest there is some evidence that municipalities may be responding more independently to local input requirements.

The greater flexibility that is currently being introduced into local decision-making has taken the form of the



**Figure 2.** Distribution of funds to health centres, Masaya Province, 1999–2001



**Figure 3.** Budget allocations to health centres with SILAIS Masaya, 1999

transformation of funding for basic supplies (food, cleaning and office supplies), utilities and fuel to a cash basis. This devolution of authority is limited so far, since unit prices of personnel and pharmaceutical inputs, which made up more than 80% of local budgets in 2001, are still controlled centrally. Our statistical results suggest that while unit prices might be inflexible, quantities (in particular the mix of labour inputs) might be slowly beginning to respond.

By 2003 however, it is planned that funds to finance wages will be allocated to hospitals and SILAIS in cash. Wage rates will continue to be determined by civil service norms. Thus hospitals will not be able to substitute non-labour inputs for personnel (since the wage fund will be fixed), and will not be able to attract particular individual providers by offering above-civil-servant level wages. Nonetheless, the ability of local employers to alter the labour mix – something they

**Table 2.** Change in budget share of personnel at municipality level, Masaya Province

	All municipalities		Excluding Monimbo	
	Mean	Variance	Mean	Variance
1999/2000	-0.0003	0.00148	-0.0223	0.00011
2000/2001	-0.0257	0.00104	-0.0244	0.00117
F value		1.4219		10.233

seem to be starting to do now – should allow cost savings to be realized.

Concurrent with this proposed decentralization of personnel decisions, the administration of wage payments will be centralized. At the present time, each month a representative from a SILAIS travels to Managua and collects a bundle of wage cheques, one for each worker on the payroll. The representative returns to the province and distributes the cheques. In the future, payments are to be made electronically to individuals' bank accounts, thus reducing the transactions costs involved, and hopefully increasing the accuracy of payments.

#### 4. Further issues in decentralization and contracting

This section reports on four further issues relevant to the decentralization debate in Nicaragua. We first examine the issue of macro-economic control and local revenue retention. Secondly, we discuss the prospects for contracting not with public sector organizations but with NGOs. This is followed by a comparison of the health sector reforms with Nicaragua's decentralization of education financing. Finally, the role of decentralized health centres in poverty targeting is briefly addressed.

##### Autonomy and the retention of own-source revenues

Some hospitals generate revenues from a variety of sources that supplement MINSA funding. The primary sources are:

- INSS (i.e. social security) patients, on behalf of whom a payment is made from INSS to the hospital;
- private patients of the hospital, including employees of companies that sign capitation contracts with the hospital; and
- private patients of doctors who choose to use the hospital's facilities. For example, an individual might pay a physician for a service directly. If part of the service – e.g. the surgery – is performed in the hospital, the physician makes a payment to the hospital (to cover the use of the operating theatre, etc.).

These own-source revenues are more important in Managua and other urban centres, where more INSS-affiliated individuals live, where there are more large companies that can feasibly contract with a hospital, and where incomes are generally higher.

In principle, hospitals and SILAIS are permitted to retain any revenues they generate, in order to encourage competition and efficiency. However, as public sector institutions, all of their activities are also properly incorporated into a consolidated fiscal picture of the macro-economy. Thus, under IMF-endorsed policy, own-source revenues are by law transferred to the MHCP's 'caja unica', an account with the Ministry of Finance that allows the consolidated fiscal position to be calculated (and controlled). In practice, these funds take some time to return to the localities and hospitals from which they derive. Indeed, because of the delay, it is difficult to ascertain what proportion of the funds are returned, as establishing the counterfactual, and hence the rate of crowding out, is problematic.

This example of financial autonomy illustrates the trade-off between local autonomy and macro-economic control.<sup>13</sup> However, the potential importance of this particular source of macro-economic inefficiency may be questioned, since own revenues account for on average not more than 10% of hospital and SILAIS funds (although they do reach 50% of revenues for one hospital in Managua), and as a proportion of public revenues they are tiny. The costs of centralizing all revenues, in terms of watered down incentives for cost control at the local level, should be balanced more properly against the redistributive impact noted in the preceding footnote, than against an improved macro-economic environment.

Nonetheless, if macro-economic accounting is deemed an important instrument of control, in theory a resolution could be to have hospitals and SILAIS *report* own-source revenues, but without the obligation of actually *transferring* them to the centre. Of course, this might have no substantive effect at all, if subsequent budget allocations are adjusted on the basis of the reports, resulting in the same net revenues accruing to facilities.

##### Contracting with NGOs

The move towards contractual relationships with public institutions – hospitals and health centres – can be seen as a shift in the direction of the separation of purchasing and provision. If MINSA goes further down this route, it will be natural for it to expand the set of potential suppliers to include non-budgetary institutions, such as non-governmental organizations.

NGO activities in Nicaragua are widespread, although fewer than half of the organizations that provide health care or

other health services are registered with MINSA. Consequently, MINSA has little information on exactly what services are provided through the NGO sector, and which segments of the population benefit from this provision.

However, the government has begun the process of formalizing the role of NGOs by contracting with one to provide services along the southern border with Costa Rica. This contract, which covers basic services for a defined population, has not resulted in large changes in the kinds of services provided, nor the recipients of those services. The only change appears to be that the NGO, which previously charged some fees, is now not permitted to do so. Assuming low enough demand elasticities, the only change then is a net financial transfer from MINSA to service recipients, and perhaps to the NGO (if the contract price is higher than the user fees previously generated). However, to make strong statements about the net effect of the change in user fees requires that survey data be collected. This may be of use in informing the design of future contracts that MINSA might enter into with NGO providers.

### Comparison with the decentralization of education

Decentralization of health care delivery and financing in Nicaragua has lagged behind a similar reform in the education sector. About 80% of schools in the country are autonomous, being operated by a school council which consists of the principal and representatives of teachers, parents, students and other community groups. The government in Managua retains control over salary levels, but finances education through per pupil grants to schools, based on an estimate of unit costs (which varies geographically).

There are some special incentives designed to keep primary school-aged children at school. These are paid to the school, instead of to the mother or family, but represent the only kind of payment that could be interpreted as a contractual arrangement wherein financing is tied to 'results'. Thus the decentralization of schools differs considerably from the modernization of the organization of the health sector.

One reason that schools do not sign complicated contracts with the central Ministry of Education might be that, contingent on funding, the provision of schooling is inherently simpler than the provision of health care. A more subtle difference is that it may be easier for consumers (i.e. parents) to monitor the performance of educators than it is for potential patients to monitor the performance of health care providers. Parents take their kids to school every day, they see the classrooms, and have a continuing interest in the outcomes over a prolonged period. On the other hand, individuals visit hospitals and/or clinics infrequently, and may not be informed about what to expect from providers.

This difference in the ability of consumers to monitor providers motivates public intervention through a contractual instrument. MINSA has adopted the roles of both contract negotiator and contract enforcer, although the SILAIS maintain some monitoring authority over health centre activities. True decentralization would devolve more

authority to the SILAIS to negotiate contracts, but the benefits of an additional layer of bureaucracy may be outweighed by the costs of providing incentives to the SILAIS themselves.

### Poverty targeting through health centres

Poverty is endemic in Nicaragua, where 48% of the population lived below the poverty line in 1998.<sup>14</sup> In addition to the high incidence of poverty, the distribution of well-being, as measured for example by household consumption, exhibits wide variations across jurisdictions, with the Atlantic coast having considerably more, and deeper, poverty than the regions surrounding Managua in the western part of the country. The rural poverty rate in 1998 was 68%, compared with a rate of 30% in urban areas. Medical care needs in rural areas are generally greater, while the supply of quality services is lower than in urban areas. Nonetheless, the distribution of income is uneven *within* provinces, as well as *among* them.

In this context, one role of decentralization that has recently attracted some attention is that of within-jurisdiction targeting of public assistance to the poor (e.g. Galasso and Ravallion 2001). Health centres, under the jurisdiction of local SILAIS, perform a limited amount of targeting through their ability to exempt individuals from certain fees, for laboratory tests, X-ray fees and charges for medicines. In each health centre there is supposed to be a social work centre. Patients are asked where they live, what kinds of basic services they have in their homes, the number of family members living with them and a measure of income. Based on this information, the social worker can, with some discretion, apply a formula to establish the financial contribution required of the patient.

In addition to this local targeting, the central government has available a recently constructed poverty map of the country, which would permit regional targeting based on local poverty rates. A useful exercise would be to investigate how much such regional targeting would, or could, improve the redistributive effects of health financing, given the performance (and potential reaction) of local targeting practices undertaken at health centres.

## 5. Conclusions

Nicaragua's health sector modernization project represents an attempt to reform the way in which publicly provided medical care is organized and financed. The main feature of the reforms includes a decentralization of decision-making authority, phased in over time, coupled with an increase in local accountability. Local decision-making authority has been increased by allowing managers more freedom to allocate inputs, although the real test will come when it is time to give them authority over all aspects of personnel choices (including wages). Accountability has been strengthened by two policy choices: first, simply stipulating what is expected of hospitals and health centres in the form of a performance agreement helps inform providers of what is expected of them. And secondly, tying rewards (i.e.

bonuses) to the satisfaction of these requirements provides incentives.

The literature on the design of contracts from economic theory provides subtle insights into the trade-offs between risk-sharing and incentives, or between rent allocation and incentives.<sup>15</sup> The objectives of the Nicaraguan reforms represent a more basic, and earlier, step towards optimal contracting. They aim, more simply, to ensure that the government actually specifies what it wants providers to deliver, and that it gets what it pays for. Parents do not buy food for their children by simply sending a cheque to the supermarket:<sup>16</sup> similarly, the Ministry of Health seeks to ensure provision of health care not through open-ended funding, but by requesting specific actions, and paying for them. Determining the right set of actions and activities to purchase, and adjusting the mechanism by which they are paid for, presents challenges for the near future.

## Endnotes

<sup>1</sup> Sistemas Local de Atención Integral a la Salud.

<sup>2</sup> Two in Managua under an IDB project, four outside the capital under a World Bank project.

<sup>3</sup> See Birn et al. (2000) and Nigenda and Machado (2000) for a review of these developments. Arredondo and Parada (2000) present a review of health decentralization in three Latin American countries.

<sup>4</sup> Nigenda and Machado (2000).

<sup>5</sup> HIPC refers to Highly Indebted Poor Countries; see IMF (2001).

<sup>6</sup> See the series of papers by Chalkley and Malcomson (1996, 1998, 2002) and by Ellis and McGuire (1986, 1990) for a theoretical framework for designing optimal contracts.

<sup>7</sup> These represent a public good for the relevant staff if their benefits are enjoyed by all.

<sup>8</sup> Some targets, e.g. those with binary outcomes, cannot be exceeded. Thus, if one component of the management category is to write a plan, writing two plans does not represent an over-achievement of the target. Of course, writing a good plan is better than writing a bad one, but the criteria for awarding points, in some cases like this, is limited to an all-or-nothing judgement. Clearly for other components, such as the number of patients served, it is possible to exceed the target, but no further points will accompany such an outcome.

<sup>9</sup> In fact, the issue is whether they understand the production process less well than MINSA officials. One of the potential benefits of formal contracts was seen by some officials as the provision of information to providers of medical care, e.g. via medical protocols that would be directly useful to providers.

<sup>10</sup> A performance agreement was signed between MINSA and Hospital Aleman in Managua in 2000. Individual departments within the hospital were permitted to choose whether to join the performance agreement or opt out and be ineligible for bonus payments. Initially there was some resistance, and not all departments signed, as individuals were concerned that the agreements would lead to privatization, sackings, harder work, lower wages and generally poorer working conditions. As it turned out, all departments that participated in the agreement received bonus awards that were large enough to offset any possible negative effects (although none of the concerns described in the previous paragraph were actually reported). This has led all other departments to enter the performance agreement for 2001, in anticipation of receiving bonus awards.

<sup>11</sup> Another way is to implement regular financial audits, which are effective if they can identify inappropriate (or fraudulent) expenditures. However, defining the appropriateness or otherwise

of expenditures can easily lead back in the direction of rigid expenditure controls.

<sup>12</sup> The data do not include figures for two municipalities, Alejandro Davila Bolanos and La Concepción, which were not available for all 3 years.

<sup>13</sup> The other obvious trade off is between local autonomy and inter-provincial equity. Allowing provinces to retain own-source revenue could plausibly lead to a worsening of the countrywide distribution of income. Some kinds of off-setting inter-provincial transfers (mediated through the central government) may then be necessary.

<sup>14</sup> Annex Table 1, Government of Nicaragua (2001).

<sup>15</sup> See Jack (2001) for a review.

<sup>16</sup> Thanks to Bill Savedoff for suggesting this analogy.

## References

- Abramson WB. 2001. Monitoring and evaluation of contracts for health service delivery in Costa Rica. *Health Policy and Planning* **16**: 404–11.
- Arredondo A, Parada I. 2000. Health financing changes in the context of health care decentralization: the case of three Latin American countries. *Revista de Saude Publica* **34**: 449–60.
- Birn AE, Zimmerman S, Garfield R. 2000. To decentralize or not to decentralize, is that the question? Nicaraguan health policy under structural adjustment in the 1990s. *International Journal of Health Services* **30**: 111–28.
- Chalkley M, Malcomson J. 1996. Contracts for the National Health Service. *The Economic Journal* **106**: 1691–702.
- Chalkley M, Malcomson J. 1998. Contracting for health services when patient demand does not reflect quality. *Journal of Health Economics* **17**: 1–20.
- Chalkley M, Malcomson J. 2002. Cost sharing in health service provision: an empirical assessment of cost savings. *Journal of Public Economics* **84**: 219–50.
- Ellis R, McGuire T. 1986. Provider behaviour under prospective reimbursement. *Journal of Health Economics* **5**: 129–51.
- Ellis R, McGuire T. 1990. Optimal payment systems for health services. *Journal of Health Economics* **9**: 375–96.
- Galasso E, Ravallion M. 2001. *Decentralized targeting of an anti-poverty program*. Washington DC: World Bank.
- Government of Nicaragua. 2001. A strengthened growth and poverty reduction strategy paper. July.
- Jack W. 2001. Purchasing medical care: a conceptual framework. HNP anchor, the World Bank.
- International Monetary Fund. 2001. Nicaragua: tracking poverty-reducing public expenditure: Assessment and Action Plan. internal report.
- Mills A. 1997. Contractual relationships between government and the commercial private sector in developing countries. In: Bennett S, McPake B, Mills A (eds). *Private health providers in developing countries: serving the public interest?* London: Zed Press.
- Mills A. 1998. To contract or not to contract? Issues for low and middle income countries. *Health Policy and Planning* **13**: 32–40.
- Nigenda G, Machado MH. 2000. From State to Market: the Nicaraguan labour market for health personnel. *Health Policy and Planning* **15**: 312–8.

## Acknowledgements

The author thanks Mauricio Dinarte (Nicaragua Ministry of Health), Bill Dorotinsky, Gerry Laforgia, Jennie Litvack, Bill Savedoff, and officials of the Government of Nicaragua for providing much assistance and information, and the Decentralization Thematic Group of the World Bank, for financial support. The views expressed represent those of the author, and should not be attributed to the Government of Nicaragua, or to the World Bank or to any of its members.

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