Strengthening health systems through public-private partnerships: theory, evidence and lessons for developing countries

Dr. Mark Hellowell
Lecturer, Global Public Health Unit
University of Edinburgh

Abstract

Various global health actors and scholars have made strong claims that delivering health care through public-private ‘integrated’ partnerships will improve the efficiency and effectiveness of services and help to strengthen health systems. This paper reviews theoretical and empirical research to evaluate this claim. The research reviewed in this paper suggests the micro-economic case for such partnerships is more ambiguous than its advocates recognise. Where it is easy to specify, measure, and monitor services, the adverse effects of private ownership, bundling and risk-transfer on the quality of services can be curbed. However, specifying and measuring verifiable performance indicators that can be used to reward and penalise a provider of clinical services is challenging. As contracts will be incomplete, service quality is at risk. Only where the efficiency and clinical quality performance of existing public provision is poor, and purchasers are able to specify, measure and verify the operator’s performance, does theory indicate that an integrated partnerships approach will be socially optimal. Even in this case, empirical evidence suggests the value for money of the approach – i.e. from the perspective of the health system - is questionable. A broad range of exogenous variables will determine the prices achieved through partnerships, especially in an era when both commercial and development finance are in short supply and may be costly. Finally, because of their long-term and complex nature, integrated partnerships present particular challenges to fiscal decision-makers, and there may be inadequate knowledge and/ or incentives to do this objectively. In developing contexts, the impact of poor budget planning and execution can be severe, and it is not clear that such problems have been addressed by available sources of technical expertise.
1. Introduction

In 2010, the World Health Assembly passed a resolution calling on national governments to “constructively engage the private sector in providing essential health-care services” (World Health Organization 2010, p.4). In many low- and middle-income countries, interest has been growing in forms of public-private partnership (PPP) in which the private sector is contracted to deliver health care assets and clinical services on behalf of the public sector (Kangwana et al 2011). Because responsibility for asset-delivery and service-provision are contracted out to the private sector in single “bundled” transaction (in contrast to the infrastructure-oriented model pursued in countries such as the United Kingdom, Canada, Egypt, Mexico and Brazil), this is sometimes called the “integrated partnerships” model (Sehki et al 2011). Although the model is being promoted by several multilateral development banks (such as the World Bank and the African Development Bank) and official donors (such as USAID and the British Department for International Development), there is little evidence relating to its performance in developing countries (Patouillard et al 2007), and no guidance for policy-makers in terms of when the model is likely to be beneficial, or how it might be used effectively (DFID 2011).

This paper makes an attempt to address the gaps. Section 2 (below) outlines a framework based on institutional economics and organisational theory to assess the cost and benefits of private ownership, risk transfer and bundling before reviewing recent developments in financial economics and public finance theory to inform the assessment of integrated partnerships in developing contexts. Section 3 examines the complexities and uncertainties associated with this form of contracting, and considers the fiscal risks that these may generate in policy contexts in which there is limited fiscal discretion and budgeting capacity. Section 4 concludes, highlighting the lessons learned for future policy and practice.
2. Theoretical foundations of the integrated partnerships approach

This paper focuses primarily on partnerships in which a private sector consortium (‘the operator’) commits to design and build new or upgraded health care facilities, and deliver a specified suite of clinical services within those facilities over the period of the contract. In this model, the operator assumes substantial financial, technical, operational and clinical risks, and receives a financial return through payments over the life of the contract from the public sector. The payment covers the operator’s operational and financial costs (and is consequently called the ‘unitary fee’) and is made as, when, and to the extent that the health care services specified in the contract are delivered, although payments may also be subject to limited deductions if services do not meet contracted standards (Farquharson et al 2011).\(^1\)

From an economic perspective the integrated partnership model has three important features, namely that: (i) payments are made by the public sector to the operator according to the operator’s performance in delivering the outputs that are specified in the contract, and decisions about the inputs associated with the production of these are made by the operator; (ii) all the inputs associated with the production of the outputs, including the design and construction of new facilities, maintenance of those facilities, and the delivery of clinical and non-clinical services over the contract period, are bundled together within a single transaction; and (iii) there is an sharing of the risks inherent in the production of the outputs.

The way an integrated partnership could in principle be economically advantageous is by improving efficiency in the production of services, for example by providing the outputs at a lower cost than organisational alternatives or, conversely, enhancing the quantity and

\(^1\) The integrated approach is an evolution of the project finance (PF), or private finance initiative (PFI) approach, which has been used by many governments to deliver social infrastructure projects such as schools, hospitals, prisons and government buildings. In all these cases, payments are based on the availability of the facility to a defined standard. The innovation of the integrated partnerships approach is to combine the contract for facilities (with payment conditional on the availability of assets) with a contract for a defined package of clinical services (for which payment is fixed but subject to deductions in the case of service failures).
quality of outputs delivered with the available funds. The description of integrated partnerships outlined above indicates that such gains are likely to arise from three features of this contractual approach, namely: (a) the *ownership* that the operator has over the allocation of financial resources provided to it by the public authority purchaser; (b) the *bundling* together of the different phases of service production and provision; and (c) the *allocation of risks* to the parties best able to manage them, thereby minimising their economic cost.

**Ownership.** Both in the public and private sectors, production processes are subject to incentive problems due to the different objectives of, and information asymmetries between, ‘principals’ (i.e. the state or the equity-holders of a private firm) and ‘agents’ (i.e. senior bureaucrats or managers of a private firm). However, some economists believe it is easier for the private firm to deal with principal-agent problems and therefore lose less than the public agency in terms of efficiency. Notably, the state has ambiguous objectives, with no clear measure against which to assess its performance; and is insulated from income and expenditure losses and bankruptcy (Preker *et al* 2000). For all these reasons, a private operator might be expected to exhibit higher cost-efficiency than a public operator, being better placed to use its discretion to arrive at an efficient mix of inputs or to undertake investments to minimise the costs involved in producing the outputs (Brealey *et al* 1997).

Currently, however, there is no clear evidence to support the conclusion that the private sector is inherently more cost-efficient than the public sector in terms of health care production and provision. A meta-analysis of 317 econometric studies by Hollingsworth (2008) found that, across the world, publicly owned health care organisations outperform both not-for-profit and for-profit providers in terms of technical efficiency, results that reiterate earlier analyses (Hollingsworth 2003). More recently, a systematic review of 102 studies comparing the performance of public and private health care providers in low- and middle-income countries concluded that the private sector was no more efficient,
accountable, or clinically effective than the public sector in these contexts (Basu et al 2012). Though these results may reflect many confounding factors, including the possibility that public and private firms provide different levels of quality, an across the board presumption in favour of private sector superiority should not drive the use of integrated partnerships.

However, even if it is assumed that both sectors face equal agency problems and are equally able to deal with them, there may be reasons to believe that a private operator of an output-based contract will make more efficient use of its managerial discretion than a public operator. In general, a public sector principal can seldom specify and verify the output sufficiently well in order to make the agent provide the desired service quality under all possible circumstances (Preker et al 2000). Instead, the principal enters into an incomplete contract with the agent, which specifies the provision of a service only to an incomplete extent because of informational and monitoring problems as well as uncertainty about the future. This is particularly the case with integrated partnerships, as they are set up to provide a package of complex services which are hard to specify, measure and monitor, and have long contract periods which makes them particularly susceptible to uncertainty.

When contracts are incomplete, the incentive structure may, or may not, promote cost-efficiency, depending on which party owns the ‘residual control rights’ associated with the assets used in production (Hart et al 1997; Hart 2003). The party that owns these rights controls the usage of assets under all circumstances, and this determines the party’s bargaining power when resolving non-contractible situations (Välilä 2005). For example, if the owner wishes to make an investment that will cut production costs without affecting service quality, it can do so without renegotiating the contract. However, if an operator without residual control rights wishes to make this investment, it needs the owner’s consent, which, in turn, is likely to result in a renegotiation and re-pricing of the contract. Therefore, where the operator has the control rights, it has strong incentives to promote cost-efficiency.
However, in complex areas of health care delivery like tertiary care, in which clinical services are subject to rapid advances in technology, service quality cannot be accurately specified for the long-term, making it difficult to write complete contracts. Even in the short term, it may be hard to define, measure and monitor service requirements. If the agent’s investment in cost-efficiency has a detrimental impact on service quality, there will be too much of such investment and service quality will fall below the required, or socially optimal, level. For example, it is possible to could imagine a non-contractible innovation in equipment used for treating patients that is as effective as the one applied hitherto (so that specified outputs continue to be achieved) but is less comfortable for patients (Reiss 2005). In contrast, where residual control rights are in the hands of the public sector principal, this outcome can be prevented by choosing not to agree to any investment in cost-efficiency that will result in a reduction in service quality. The price for safeguarding service quality in this case is a lower level of cost-efficiency. Therefore, where the residual control rights are owned by the public sector principal, there is too little investment in cost-efficiency, while under private ownership there is too much (that is, compared to the combination of efficiency and clinical quality that society would choose if complete contracts could be written) (Hart 2003).

In addition, since the level of public expenditure is invariant to the level of cost-efficiency achieved by the operator,² policy-makers will also focus on the quantity and quality of services delivered for the fees being paid. Given that the contract is on based on service outputs, any change with respect to the quantity or quality of services required will necessitate a renegotiation, and this is the case regardless of which party owns the residual control rights associated with the utilised assets. Therefore, a private operator will always receive the same payoff from renegotiating the contract and implementing the quality-

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² It should be noted this analysis examines cost-efficiency from the perspective of the economy as a whole. A policy-maker should be interested in this, and related forms of efficiency (technical, productive), since the use of resources in the project has an impact on the availability of resources elsewhere in the economy. However, it should be recognised that the fee paid to the private sector is largely fixed (or at least does not vary with the private sector’s costs); thus, greater efficiency in service delivery will not result in a lower level of expenditure.
enhancing investment regardless of whether it owns the residual control rights associated with the asset or does not (Hart 2003). That the operator needs to share the gain from the investment with the public sector reduces the incentives to invest in better service quality; and hence, there will be sub-optimally too little investment in service quality (Välilä 2005).

To sum up the analysis so far, it would seem that contracting for health care-related activities on the basis of an output specification, in which the residual control rights of the associated assets are transferred to private ownership, is economically justified when: (a) the quality and quantity of the required output is easy to measure and monitor; (b) improvement in cost-efficiency is unlikely to impair service quality and/or public interest objectives are better served by enhancing cost-efficiency at the expense of some aspects of quality; and (c) the nature of technical innovation is more likely to improve cost-efficiency than quality.

Under these conditions, the promotion of cost-efficiency through private ownership of control rights is beneficial. On the other hand, private ownership of these rights is likely to be harmful when: (a) performance indicators defining the required quality and quantity of outputs are difficult to specify and verify; (b) cost-reduction efforts on the part of the operator are likely to have a detrimental impact on the quantity and quality of services; and (c) the absorption of technical innovation is more important for clinical quality than cost-efficiency.

**Bundling.** When should outputs such as design, construction, facilities management and clinical services be bundled together in a single transaction rather than contracted on separately? This question has attracted a substantial amount of theoretical research, which highlights the importance of externalities (negative and positive) associated with producing the various categories of output (Hart 2003; Reiss 2005; Bennett and Iossa 2006; 2008; 2011). In the simplest model, Hart (2003) considers two types of investment during the construction phase that improve cost-efficiency in the operational phases, one with a negative and the other with a positive externality in terms of service quality. In a health care project,
an example of the former could be the installation of durable but clinically-ineffective equipment, and the latter could be the installation of equipment that is both inexpensive to maintain and improves clinical outcomes. When the construction and operation phases are bundled, the private operator will make both investments provided they are profitable, which is the case if the Net Present Value of the resulting cost savings exceeds the investment cost. The operator makes the optimal level of the quality-improving investment, which reduces its operational expenditure, but also too much of the quality-shading investment, especially if the public sector principal cannot monitor service quality adequately. Unbundling, in contrast, will not lead to an excessive amount of quality-shading investment, as a construction firm will ignore subsequent maintenance costs altogether and simply aim to fulfil the construction contract. For the same reason, unbundling will yield too little quality-improving investment.

The model suggests that, in a world of contractual incompleteness, bundling leads to too much investment in quality-reducing cost savings, compared to the combination of cost efficiency and service quality that society would choose if complete contracts could be written (Reiss 2005). By contrast, if the government contracts separately with a builder (for delivery of the facility) and an operator (for maintaining the facility and providing services), the investment will not be carried out since it is not profitable for the builder. In this case, society foregoes cost savings over a project’s life-cycle but achieves higher service quality.

Therefore, bundling is superior to unbundling only when the quality of the service can be well-specified and verified - or at least more so than the quality of the facility needed to produce the service. In principle, this may be the case with a hospital where it is easier to design appropriate performance indicators for the service than on what may be a very complex building. However, monitoring the performance of an operator in terms of effectiveness and quality is likely to prove challenging (Preker et al 2000). On the other hand, the case for bundling is much weaker in areas of health care such as primary care,
where the asset (e.g. a health clinic) is easy to contract on while the service itself (e.g. the quality of primitive, preventative, and curative health services) is much more difficult.

While the policy implications of the economic analysis above are ambiguous, and likely to be interpreted on a context-specific basis, the bundling features of the integrated partnerships approach might be advantageous in developing countries in a way that is not considered in these models. In these countries, short-termism and inadequate budgetary institutions and practices often result in investment decisions that are made on the basis of one-off capital costs, without taking proper account of the whole-life costs of maintaining infrastructure. As a consequence, the recurrent costs of capital expenditure are one of the largest single categories of public expenditure in many developing countries (and in fact the largest in most African nations) (Schiavo-Campo 2007). The resulting constraints on funding for asset maintenance significantly undermine the efficiency of capital expenditures and their capacity to enhance the cost-efficiency and quality of service delivery, adversely affecting on the fiscal sustainability of social provision in these countries. The integrated partnership is, in part, a means of securing long term budgetary commitment to fund the whole-life costs of capital expenditures. Although the non-discretionary nature of this expenditure creates budgetary challenges, this may be regarded as a major pro-efficiency benefit of the approach.

**Allocation of risks.** The transfer of at risks to the private sector partner is one of the key characteristics of an integrated partnership. Risk refers to an uncertain but quantifiable outcome in terms of some of the project’s costs or benefits, for example the delivery of the facility on time and to-budget, the availability (and quality) of clinical and non-clinical services, and the financial viability of the project. Risk transfer leads to cost-efficiency to the extent that it improves the assessment and management of the project’s risk, thereby minimising the economic cost of that risk. In addition, assuming a contract is procured in a
competitive environment, and bidders are able to factor their risk management capabilities into the price of bids, this may also lead to greater value for money for the public authority.

In an integrated partnership, the public sector pays a fixed unitary fee to the operator, for whom the outturn costs and revenues accruing to the project will differ from those expected at the time of financial close. The contract prescribes the basis for upward adjustments to the unitary fee to take account of inflation, and specifies deductions via performance penalties (Downs *et al* 2013). Typically, the unitary fee is based on a minimum and maximum number of patients to be treated per year, and this may be broken down crudely into inpatients and outpatients, or specified in more detail by patient diagnosis. It will often specify the penalties to be levied if there is under-performance (i.e. the activity level is below the lower parameter), and the incremental payments to be made if there is over-performance (i.e. the activity level is above the upper parameter) (ibid). This structure implies that significant elements of an operator’s costs and benefits are subject to uncertainty. For example, the cost of construction may be higher than estimated if there are delays, and the impact of this will be borne by the operator (and its subcontractors) at least up to the point that the viability of the project is not threatened (Hellowell and Vecchi 2012a). On the revenue side, integrated partnerships allow for unitary fees to be reduced if the parts of the facility are unavailable for use (e.g. due to poor maintenance), or where service quality fails to meet contracted standards. Better than expected performance will lead to an increase in revenue only in respect of (i) *construction*, in that early completion will lead to a more rapid onset of unitary fees and therefore higher revenue; and, as noted above, (ii) *clinical activity*, since delivery above the upper parameter leads to additional income. There will be no increase in the unitary charge if the quality of maintenance or service provision is higher than those contracted; and therefore the ability of the operator to generate revenues in excess of the level specified in the contract is, in principle, strictly limited (Grimsey and Lewis 2004).
The theoretical advantages of transferring project risks to the private sector are at the core of the microeconomic case for including private finance (both equity and debt)\(^3\) within the contractual bundle (Dewatripont and Legros 2005). With funds at risk, equity and debt investors may provide a level of rigour and due diligence to assessing the reasonableness of cost and benefit projections that may also benefit the public sector, especially when the government lacks the capacity (or indeed the motive) to evaluate project risks judiciously.

Table 1 (overleaf) summarises the processes of risk management undertaken by equity and debt investors. These processes are broken down into the two phases of a project’s life – construction and the service delivery phases. An equity-holder has a lower priority claim on cash flows, and if the project is delivered at a higher cost than that forecast at financial close, or outturn revenues are lower than those expected, the holder may fail to achieve its expected rate of return. Consequently, equity investors have a strong incentive to act as integrators and managers of construction, maintenance and service delivery. A debt-holder has a higher priority claim on cash flows and can also “step in” to claim the assets of the operator where sustained poor performance is placing debt service at risk. In cases where outturn costs depart significantly from those expected, or where revenues fall short of expectations (for example, due to poor budgetary execution on the part of the public sector), sponsors may default on their debt, with serious implications for the value of debt assets. Therefore, debt-holders have a *regulatory* role and a strong incentive to carry out this role assiduously – for example, in assessing the robustness of project planning before and after

\(^3\) For clarity, equity assets are the *fundamental ownership units* of the private operator – often a consortium, or special purpose vehicle – that is undertaking the project. An equity claim entitles the holder to any cash flows left in the project after meeting all operational and financial costs. In contrast, debt is not an ownership interest in the firm, but entitles the holder to a specified stream of cash flows in the form of capital payment and interest.
financial close, eliminating optimism bias, ensuring that risks are allocated to the appropriate firm within the consortium, monitoring performance and “stepping in” to manage problems.

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The use of private finance for social infrastructure projects has enhanced project management performance, especially in terms of post-contractual cost- and time-certainty (National Audit Office 2009; Allen Consulting 2007). This is also reflected in the stability and predictability of equity returns and the low default rates on project finance loans. In a recent study of 3,533 bank loans originated between 1990 and 2010, the credit ratings agency Moody’s found that the default rate for PFI/PPP contracts was a maximum of 0.5% in any given year during the first 10 years of the deal, and zero thereafter. In addition, analysis of survey data by the British National Audit Office (2012) found a high degree of cash-flow predictability among project sponsors, such that in 84 of the 118 contracts surveyed, sponsors were forecasting rates of return in excess of those expected at when contracts were signed.

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4 Optimism bias denotes a tendency on the part of organisations to systematically under-estimate costs and time incurred and/or over-estimate benefits that arise when undertaking an investment (Flyvbjerg 2009).

5 It should be noted that post-contractual cost-certainty should not be taken as the overall arbiter of cost-efficiency. It should be obvious that a public authority that pays a premium for cost certainty – through a PPP or some other form of fixed-price contract – may be getting a bad deal if the price of that certainty is too high.
The theoretical discussion above identifies three possible sources of higher cost-efficiency in an integrated partnership than in public provision. First, private ownership of residual control rights improves the incentives to undertake cost-reducing innovations. Second, by bundling the design and delivery of the asset with operational and service-delivery activities within a single transaction, the whole-life societal costs of the project may be reduced - and this may translate into lower public expenditures assuming that the procurement process is competitive enough to generate efficient contract prices. Third, the division of risks associated with the production of the required outputs can improve the incentives to assess and manage risks and thereby reduce their economic cost. Again, assuming competitive markets, and feasible foresight among bidders regarding their ability to minimise any adverse impact of risks, this may result in lower costs for the public purchaser.

If it is easy to contract on the service (that is, if it is easy to specify, measure, and monitor the service), adverse effects of private ownership, bundling and risk-transfer on the quality of services can be curtailed. However, long-term contracts for complex clinical services are necessarily incomplete, and this places service quality at risk. In low- and middle-income countries, there may not be the institutional capacity to accurately specify and measure verifiable performance indicators that can be used to reward and penalise the operator. The general conclusion of the economic models reviewed above is that integrated partnerships are likely to be well-suited to situations in which there is: (i) significant scope for cost-savings and (ii) where the level of service quality provided by public agencies is poor, such that the quality provided by the operator is acceptable even after taking account of likely innovations and investments in quality-shading. Since the cost-efficiency and clinical effectiveness of the public sector varies between different localities and agencies (Hollingsworth 2008), the economic appraisal of integrated partnerships should include a judicious assessment of current managerial and clinical performance in the particular case.
3. Competition, regulation and the cost of capital

The models outlined above take an aggregate social welfare perspective. They are concerned primarily with cost-efficiency from the perspective of the economy as a whole, and do not engage directly with issues that are likely to be of more direct interest to health system decision-makers, such as the ‘reasonableness’ of the unitary fee, or the impact of the fee on the health system’s financial sustainability. The present section focuses on the procurement mechanisms through which contract prices are determined, and the likelihood of achieving ‘reasonable’ contract prices through those mechanisms. The impact of unitary fees on the fiscal and economic sustainability of health systems is considered in the following section.

Economic models tend to assume that the bidding processes are competitive, but this assumption may be unwarranted in low- and middle-income contexts. If bidding processes are not competitive, there is no guarantee that contract prices will be efficient (such that prices approximate marginal costs), whatever pro-efficiency incentives may be in place post-contractually. Industries differ in their structures, ranging from the sectors in which there is a multiplicity of small producers, through more concentrated markets with a smaller number of large producers (Baldwin et al. 2010). Where a concentration in market share leads to a reduction in competition in procurement, this may confer substantial advantages on bidding firms in bargaining with public authorities. Therefore, features of the procurement process such as (i) the number of bidders involved and (ii) the period and scope of exclusive, bilateral bargaining, are likely to have a material impact on competitiveness and hence contract prices.

Auction theory predicts a negative relationship between the number of bidders and price, as more bidders in the procurement process equates to a greater degree of competition. Bulow and Klemperer (1996) show that a competitive tender is in most circumstances preferable to negotiations with one bidder, which suggests that the benefits of competition tend to outweigh what can be achieved through negotiating skills alone. Using data from
highway construction projects in Florida, Gupta (2002) shows that the price of winning bids decreases with the number of bidders, although this relationship ceases to exist when adding additional bidders to an already large number. Gupta finds a decrease in the winning bid until there are about six to eight bidders, and interprets this as evidence that procurements become fully competitive with around eight bidders. In general, the literature supports the view that more bidders make for more intense competition in a procurement, resulting in lower prices and better quality. This suggests that any features of procurement process that serves to limit participation is likely to have a detrimental impact on competition and price (econ 2004).

In complex procurements, where the purchaser’s needs are multi-faceted and requirements cannot be specified in a simple way, the transaction costs associated with searching for and negotiating with a large number of bidders may be substantial, and these costs may also be seen by bidders as prohibitive. The Transaction Cost Economics (TCE) framework pioneered by Oliver Williamson (1985; 1990) has been used to provide an account of why public-private partnerships are likely to be associated with higher transaction costs than other forms of contracting. In the TCE framework, economic actors are regarded as constrained by ‘bounded rationality’ and, since there are limits to the amount of information that an individual can store and process, contracts are necessarily incomplete. This is especially problematic when the self-interest orientation of actors is characterised by opportunism – or “self-interest seeking with guile” (Williamson 1985, p.47-8). When opportunism on the part of a provider is combined with the bounded rationality of the purchaser, the provider may be able to take advantage of lacunae in the purchaser’s knowledge to further its interests, including its profitability. The impact of the behavioural context on contract outcomes is dependent on two key dimensions of the transaction. The first concerns asset specificity. Transactions often require investments by both parties that are specific to the contract, and can only be re-deployed elsewhere at significant cost. The
advisory fees associated with contract negotiations provide one example of such investments. The second dimension is uncertainty, which is likely to be a major problem in integrated partnerships because of their long-term character, ownership and financing structures, and risk-sharing features (Dudkin and Välilä 2005). Asset specificity and uncertainty present actors with significant risks in the context of opportunism. In the case of asset specificity, the risk arises from what Williamson refers to as the fundamental transformation. Specifically, entering into a contract requires moving from an operating environment in which there is a large number of potential organisations with which to engage, to a monopolistic setting supported by investments in transaction-specific assets. Therefore, while an actor may have a legal right to exit a contract, it will face costs in doing so – including writing off relationship-specific investments and incurring the additional costs of re-entering the market. This may lead to one of the parties persevering with the contract even when the relationship is failing to deliver a positive outcome – the phenomenon of “hold-up” (Williamson 1985, p.61).

The risks that arise from asset specificity and switching costs may be augmented by those arising from uncertainty. Such risks concern the need for change. If, during the contract, circumstances surrounding the transaction change, the service specification may require amendment. From the supplier’s perspective, this generates a danger that the purchaser will perceive the change of circumstances as an opportunity to reduce the fees specified in the contract. Conversely, an opportunistic supplier might regard such a change as an opportunity to pass risk back to the purchaser, or raise the contract price, in order to increase its profits. Uncertainty therefore increases the magnitude of the hold-up problem.

Although, in TCE, managers have limited cognitive capacity, this does not mean that they are myopic. Indeed, they are assumed to be capable of “farsighted contracting” – of looking ahead, discerning problems and prospects, and factoring these into the design of the contract (Williamson 1990, p.226). Therefore, while actors are unable to develop complete
contracts, foresight allows them to develop broad contractual safeguards. Even in the context of asset specificity and uncertainty, managers will be able to anticipate the risk and ensure that the asset-specific investments are shared or that compensatory financial arrangements are posted (Williamson 1985). For example, in an integrated partnership, the operator must invest substantial internal and external capital in order to deliver the contracted facility. As this renders the party making the investment vulnerable to hold-up, TCE posits that the two parties should restore balance to the relationship by making credible commitments (Williamson 1985) – in this case, by the purchaser guaranteeing to provide a fixed revenue stream over the contract period, contingent on assets and services being delivered to contract.

It is likely that integrated partnerships contain a high degree of asset-specificity and uncertainty, due to their long duration and bundling features. In a rapidly-changing industry such as healthcare, this will usually mean very high levels of uncertainty, contractual incompleteness and the need for renegotiations during the contract period (Lonsdale 2005). In this context, the TCE framework predicts that the processes of contract negotiation and contract drafting for an integrated partnership deal will be extensive and involve substantial costs for both purchasers and suppliers. This implies that the transaction costs associated with integrated partnerships are likely to be high, placing a limit on the number of bidders, and limiting the degree of competitive tension that is achievable in the procurement phase. In a context of low institutional capacity, the lack of negotiating skills presents a risk to value for money. However, even with adequate technical assistance, high transaction costs may undermine significantly the public purchaser’s ability to secure reasonable contract prices.

One aspect of price that may be affected by the rigidities of the procurement process is the finance price – the rate of return expected by equity and debt investors. It is evident from section 2 (above) that the performance of equity and debt assets associated with the global project finance market has been good by comparative standards, suggesting that the
level of project risk faced by competent investors is low. In turn, this implies that the rates of return required on project finance equity and debt assets will be relatively modest – and perhaps competitive with those observed in other markets, such as sovereign debt markets (where these exist), and even the rates charged on non-concessional development loans. Unfortunately, evidence from high-income project finance markets suggests otherwise.

On the equity side, the minimum return that will be acceptable to investors is its opportunity cost of capital, defined as the return observable on alternative investments in the same risk class. In finance theory, risk is normally measured from the perspective of an investor with a perfectly diversified portfolio. Computing the risk of a portfolio involves estimating the variance of the returns on individual assets and the extent to which they vary together, or covary. If the returns tend to move in opposite directions, this reduces portfolio risk, while if the returns on the assets move in the same direction, risk is increased. In a perfectly diversified portfolio, the risk on individual investments is eliminated and the variance of the portfolio reduces to the covariance – i.e. the component of systematic risk.

The Capital Asset Pricing Model of Sharpe (1964) and Lintner (1965) formalises this idea. It states that the cost of capital for a firm (assuming that it carries no debt) is calculated by summing the return associated with a zero-variance asset (normally referenced to the return on government bonds) and a premium for the amount of systematic risk, as follows:

$$\bar{r}_i = r_f + \beta_i(r_M - r_f)$$

where $\bar{r}_i$ is the expected return on investment $i$, $r_f$ is the return on a zero-variance asset, $\beta_i$ measures the covariance of returns on investment $i$ with those of the market portfolio divided by the variance of the latter, and $r_M$ is the return on the market index. Consequently, in standard theory, the cost of capital for an equity investor is determined by the value of beta –
a measure of the extent to which the returns on the investment are estimated to covary with those of the market portfolio (Sharpe 1964). The CAPM is more than just a theory of how assets will be priced in equilibrium: it is also the dominant theory used by corporate capital budgeting managers globally (Graham and Harvey 2002). In an integrated partnership, the level of systematic risk faced by equity investors is low, since there is negligible exposure to the economic cycle and very little correlation in returns to other asset classes (i.e. returns are largely project-related) (Vecchi et al 2013). This suggests that equity returns targeted by investors should be modest. However, both theoretical and empirical research indicates that the assumptions underpinning the CAPM are not applicable to public-private partnerships.

First, there is a general recognition among financial economists that, even if the CAPM is the most rational approach to calculating required returns, it may not be an accurate description of real decision-making among investment practitioners (Mehra and Prescott 1985; Fama and French 1992; Dimson et al 2002). In particular, agency frictions such as information asymmetries and risk aversion are often observed to play a prominent role (Shleifer and Vishny 1999). For example, while a management team responsible for managing an equity investment will be rewarded if the returns on the project exceed the expected return, they may be more than proportionally penalised if returns fall short (Spackman 2001). Therefore, from the perspective of an individual manager’s career and income, the variance of returns on a single investment may have significant importance even if, from a shareholder’s point of view, project-specific risk is not the concern (Arrow and Lind (1970,. Relatedly if in contrast to the assumptions of the orthodox CAPM approach, the distribution of returns around the mean is ‘non-normal’ (e.g. returns are skewed or leptokurtic) this may create a level of risk aversion that is higher than CAPM assumes.

Second, recent audit evidence from the UK suggests that equity investors evaluate projects using corporate hurdle rates, based on the betas of their core businesses, rather than
cost of capital benchmarks appropriate to their specific investments (National Audit Office 2012). Corporate betas will normally be higher than is appropriate for integrated partnerships, in part because the level of risk associated with their core business activities (which are subject to substantial market risk) is higher. A recent study of UK construction firms, which generally form bidding consortia in the private finance initiative (PFI), estimated the beta for the industry to be 1.05, implying a level of systematic risk slightly higher than the average for the market as a whole (Gregory and Michou 2009). As noted, revenues on an integrated partnership are more likely to vary according to project- or programme-specific factors, such as the ability of subcontractors to deliver contracted assets to time and to budget, or political factors, such as the possibility that the public sector will renege on its commitments to the operator, rather than market factors such as changes in user demand. Systematic risk (and thus the beta) is therefore low. By taking into account the market risk borne by the firm as a whole, the hurdle rate approach will produce a target return above that implied by the CAPM.

Third, equity returns are strongly influenced by the requirements of debt funders (PricewaterhouseCoopers and Franks 2002). Lenders set minimum requirements for cover ratios - effectively the level of free cash flow that a project is required to maintain over and above the amount need to make debt repayments – which have a strong influence on required returns. In some projects, where lenders take a conservative approach to setting cover ratios, this will require higher equity returns than is implied by the level of risk borne by investors.

These three considerations may lead to the prediction that the rate of return on equity for many projects will be higher than a perfect capital markets (PCM) view would suggest. Consistent with this, a succession of academic studies (Vecchi et al 2009; Vecchi, Hellowell and Gatti 2013, Vecchi and Hellowell 2012, Hellowell and Vecchi 2012b), along with studies by the UK National Audit Office (e.g. 2012), has shown that expected rates of return to
equity in European health care PPP projects are consistently higher than what we would expect given the magnitude of the risk (specific and systematic) borne by equity investors.

Of greater significance for the economics of the partnership is the interest rate on the debt, as this will typically account for between 80-90% of the total capital expenditure required for the project (Farquharson et al 2012). For debt-providers, the focus of capital allocation and pricing decision-making is credit risk, i.e. the quantified possibility that the actual return on a loan may differ from that which the lender expects at the time that the loan is agreed, with the result that the lender incurs financial losses (Koch and MacDonald 2010). Primarily, credit risk is a function of the probability that the borrower will fail to meet the terms and conditions of the loan agreement. Part of the way that lenders try to anticipate and manage the impact of credit risk is by charging a risk premium – a margin in the loan price above their own cost of raising funds (e.g. from depositors or the wholesale markets). In theory, the premium is determined by the historical performance of equivalent loans, derived as:

\[
\frac{(1 + i)p}{1 - p}
\]

where \(i\) is the cost of raising funds for the lender and \(p\) is the historical default ratio, both measured as decimal fractions (Koch and MacDonald 2010). Lenders will also consider the recovery rate, which is the proportion of the outstanding debt that will be recovered in the case of default. However, the actual rate of loss on current loans may be at variance with the historical average rate of default, and lenders may additionally consider the variance around this average (modelling, for example, the potential impact on cash flow of the loan performance in particularly bad years or phases of the economic cycle). This means that the
lender may be forced to charge an additional risk premium to cover the risk that the actual bad debt rate may differ from the expected default rate (Koch and MacDonald 2010).

There are a number of reasons why, in real world markets, the determination of required interest rates on debt capital will depart from this simplified model. Since the collapse of Lehman Brothers in September 2008, the mature infrastructure financing markets of Europe, North America and Oceania have operated in the context of a severe credit crunch that has had a major impact on the cost and availability of debt capital for infrastructure projects (Burger et al 2009). In Europe, the aggregate volume of PPP transactions that reached financial close in 2012 totalled €11.7 billion, the lowest market value recorded since 2003, and just €405 million of this related to the health care sector (EPEC 2013). In part, this reflects changes on the demand side, as the willingness and ability of state health authorities to pay for new infrastructure and services has waned in the context of falling tax receipts. Yet there are also, for sure, significant constraints on the supply side. Changes in financial sector regulation and concerns about the quality of assets held by banks have restricted long-term lending across the world. New Basel III stability ratios, in particular, make long-term loans very expensive in terms of banks’ risk-weighted capital adequacy requirements (Reviglio 2012). In response to Basel III, commercial banks are reducing risk-weighted assets, while tenors and amounts are scaled back. In terms of PPPs, risk premiums on loans in mature markets have tripled relative to pre-crisis norms (Hollowell and Vecchi 2012). Basel III is also expected to have a major impact on the cost and volume of bank lending in emerging and developing countries, resulting in much lower levels of investment (World Bank 2011).

At the same time, appetite for infrastructure assets is limited among non-banking financial institutions, such as pension funds, sovereign wealth funds and life insurance

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6 The Basel regulations, under the control of the Bank of International Settlements, seek to ensure that banks’ long-term capital is sufficient to support the credit risks on their assets. The Basel III Accord will raise required capital ratios incrementally from 2013 to 2018, at which time they should increase to 10.5% from the current 8%. As Reviglio (2012) notes, banks are responding to these forthcoming requirements by reducing risk-weighted assets, the denominator in their capital ratios, rather than increasing equity capital, the numerator.
companies. Investing in these assets requires the assessment and monitoring of credit risk, and relatively few institutional investors have the dedicated teams capable of doing this (Croce 2011). Here too, regulatory intervention can have an impact on the cost and volume of investments. For example, in Europe, institutional investors are subject to regulations that restrict their ability to allocate capital to long-term assets. Solvency II, which codifies long-standing EU directives, introduces for the first time a minimum capital requirement for insurance companies, and similar principles are likely to be adopted by pension fund regulators. Recent analysis by the ratings agency Fitch (2012) concludes that anything less than a single-A rating for debt securities would make institutional involvement uneconomic in the context of Solvency II. Given the level of counterparty risk inherent in lending to PPP projects in emerging European states, such ratings will typically be difficult to achieve, at least without substantial guarantees from multilateral development banks in the region.

In general, capital markets in developing countries are shallow and ill-equipped to provide the long-term financing required for infrastructure projects. In addition to a shortage of domestic credit, the structure of the financial sector in these countries is a constraint on investment. Since shorter loan tenors imply higher annual payments of debt principal, most partnership projects require an amortisation period of at least 15 years to be affordable (Hellowell and Vecchi 2012). Hence, while long term financing is essential, it is not available in developing countries where domestic banks typically hold only short-term deposits and other liabilities. In sub-Saharan Africa, for instance, the longest available loan tenor is five years or less, and even where longer loan terms are available, commercial lending interest rates are typically high compared with high-income countries. (Irving and Manroth 2009).

For integrated partnerships to represent an affordable solution, development finance in some form may be a necessary condition, especially where poor sovereign credit ratings or
fiscal constraints impede the direct provision of public capital into the scheme. In many countries, especially emerging economies, the principal source of long-term funding may be public sector development banks. Such institutions (for example, the India Infrastructure Finance Company) may be no more than an additional source of capital, and lend alongside commercial lenders that undertake the main credit assessment and due diligence activities (Farquharson et al. 2011). Others (for example, the Development Bank of Southern Africa) have their own internal capacity to assess and manage loan portfolios, and are able to provide a fuller regulatory role (see Table 1 above) that provides the most convincing economic rationale for including debt financing within the contract bundle (Iossa and Martimort 2011).

This discussion indicates that contract prices may be high in developing contexts - even when the ownership, bundling and risk transfer features of the partnerships approach are in favour of post-contractual cost-efficiency. A broad range of exogenous variables will determine the prices achieved through this form of contracting, including: (i) the extent of transaction-specific expenditures and the impact of these on the structure of the bidding market; (ii) principal-agent problems within equity investment firms, and the impact of this on capital budgeting practices; (iv) market conditions and regulations affecting the capital base and liquidity of commercial banks; and (v) the (non)availability of development finance.

4. Integrated partnerships and fiscal policy in developing countries
In most jurisdictions, the investments associated with integrated partnerships are recorded off the public sector’s balance sheet, reducing the impact of such investments on: (i) a government’s headline deficit and debt statistics; and (ii) the capital budgets of the government departments concerned. As this allows a greater supply of health care facilities

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7 Where it is difficult to raise long-term debt for the full capital expenditure value, governments may, and sometimes do, act as one of the long-term lenders to a project. If properly structured, this may allow the government to benefit from the discipline of having private sector capital at risk to project performance without requiring external parties to provide the full quantum of debt required to finance the capital project. The disadvantage is that the public authority assumes part of the risks normally transferred to the private sector, which may create a potential conflict of interest that needs to be resolved (Farquharson et al. 2011).
and clinical services to the population for a given level of capital resources, policy-makers have an incentive to promote this approach even when this is unlikely to result in lower contract prices, or provide gains in terms of cost-efficiency. The capital expenditure associated with a partnership - even when invisible to measures of capital expenditure, net borrowing and the stock of government debt – generates a future liability for the public sector that is analogous, if not completely equivalent, to a sovereign debt commitment, since the state authority is committed to paying the annual fee, contingent only on service availability.

The apparent relaxation of the public sector’s capital budget constraint provided by the partnerships approach may have a particularly strong incentive impact in the presence of fiscal rules, such as the European Union Stability and Growth Pact, which set an implicit ceiling on overall public expenditure. This is widely acknowledged to be an important driver of private financing for infrastructure and services in the European Union and neighbouring countries (Hellowell and Vecchi 2012). In low- and middle-income countries, fiscal constraints may be even more stringent, and the incentive to pursue off-balance sheet forms of investment correspondingly stronger. Many countries – even those that have benefited from involvement in the HIPC and MDRI debt relied initiatives - are experiencing difficulties in retaining a sustainable level of indebtedness in the wake of the global financial crisis. In many cases, the terms of trade have shifted against these countries, for example as export markets have deteriorated, and many have seen debt ratios rise since 2008 (IMF 2009).

Fiscal constraints are most obviously a pressing concern for low- and middle-income countries that must meet performance criteria associated with the government’s financing arrangement with the IMF. The Fund’s approach to macroeconomic stabilisation has remained relatively consistent over the decades even while its lending architecture has changed. It began providing concessional loans in 1986, when it introduced the Structural Adjustment Facility and, in 1987, the Extended Structural Adjustment Facility (ESAF). As a
response to criticisms about these facilities, which focused on their impact on poverty and social provision in developing countries, the IMF established a new form of concessional loan in 1999, the Poverty Reduction and Growth Facility (PRGF), which afforded a larger priority to “pro-poor” public spending while maintaining an emphasis on macroeconomic stability (Independent Evaluation Office 2004). Most recently, in 2009, the IMF carried out a further review of its concessional framework and in January 2010 established three new facilities for low-income member countries, namely: (i) the Extended Credit Facility (ECF), which replaced the PRGF as the tool to provide medium-term support for protracted balance of payments problems; (ii) the Standby Credit Facility (SCF), which in contrast to the ECF provides financing to low-income countries with only short-term balance of payments needs; and (iii) the Rapid Credit Facility (RCF), which provides rapid access to financing with no conditionalities on the loan, and is designed to meet emergency financing needs (IMF 2009).

These facilities vary in the nature and severity of the performance criteria imposed. However, with the exception of the RCF, the approach to the construction of performance criteria (known within the Fund as ‘financial programming’) remains faithful to a theoretical framework outlined by IMF economist Jean Jacque Polak in the 1950s, in which balance of payments problems are seen to result from excessive government borrowing (Polak 1997). In this model, fiscal deficits lead to a corresponding rise in domestic credit and the money supply, increase nominal income in the economy, and consumption of domestically produced goods and services. Since it is assumed that the economy is at full capacity, the rise in nominal income reflects only a rise in prices (inflation). However, the increase in nominal income leads to higher imports (impacting on the balance of payments) and reduces international reserves (Tarp 1997). Therefore, in the Polak model, the key to macroeconomic stabilisation is to control domestic credit extension to the government, reducing the possibility of excess demand over supply for goods and services and allowing the economy to
return to an equilibrium in which money demand and money supply are in balance. As a result, the financial performance criteria associated with IMF loans continue to focus on limiting the deficit by setting a ceiling on the level of net credit extension to the government.

Consequently, for countries with IMF loans, fiscal policy considerations are likely to play an important role in decision-making (Irwin 2012). Under integrated partnerships, the accumulation of privately financed capital expenditure does not affect the deficit and debt constraint in the current period but only in future periods through its impact on the level of services provided and on interest payments on debt. Thus, capital accumulation is constrained only by its impact on the budget constraint in future periods. In an environment where authorities are constrained to maintain fiscal balance, governments that favour greater capital accumulation will find a partnerships approach more attractive than direct capital spending.

The severity of the fiscal risks that arise from such considerations depends on the nature of the budgeting processes in place in the particular country concerned. Fiscal risks will be severe where there is no long-term budgetary framework that adequately captures the recurrent expenditures associated with such off-balance sheet investments (Monteira 2007). Integrated partnerships typically generate a profile of payments that is not well accounted for by short-term budgetary appropriation mechanisms (since, for construction risk to be effectively transferred, unitary fees are paid only after the construction works are completed). A result of this is that public spending on the project is negligible during construction, following which the payments profile is smoothed over the whole life of the project. In most developing countries, even a Medium-Term Expenditure Framework involves a planning horizon of just three-years (Fölscher 2007). This implies that the main decisions on the project, including whether to sign the contract, are made perhaps half a decade before fees are actually charged. In this context, national-level policy-makers (and development financiers) may place undue emphasis on completing the transaction rather than on ensuring: (i) that the
project’s economic benefits exceed the costs (taking into account judicious inflation scenarios; the ability of the government to monitor the contract; and supplier opportunism, and (ii) that the recurrent expenditures associated with the project are sustainable.

Because of their long-term and complex nature, integrated partnerships are subject to a range of different sources of uncertainty (technological, financial, commercial, and political), the combination of which presents particular challenges to the assessment of fiscal risks, and there may be inadequate knowledge and/or incentives to conduct this assessment objectively. In terms of inadequate knowledge, a major problem is the ‘planning fallacy’ (Lovallo and Kahneman 2003), in which managers make decisions based on myopic optimism rather than on a rational weighting of gains, losses, and probabilities, overestimating benefits and underestimating costs. In addition, recent experience in UK health sector PPPs shows that, in the absence of alternative financing options, public authorities will often enter into contracts that are observably unaffordable, even engaging in what Flyvbjerg (2009) calls “strategic misrepresentation” (i.e. lying) to ensure central government approval of business cases (Hellowell and Pollock 2010). Related to this, contracts have in some countries been structured in such a way as to present unacceptable risks and costs for future taxpayers and service users. For example, in one large integrated partnership in sub-Saharan Africa, affordability constraints were eased in the early years of operation by index-linking the full unitary fee to a composite inflation index (Downs et al 2013), with the result that the indexed proportion of the payment is larger than the inflation-sensitive element of a private sector operator’s cost base. Over-indexing the unitary fee in this way enables the operator to agree to a lower initial periodic payment (since extra revenue
in later years enables the payment of debt service and equity returns to be back-ended), easing affordability in the short term, but at the cost of a higher fee in the deal’s later years.\textsuperscript{8}

In the UK, public authorities also speculated on the future price level, ultimately resulting in significant additional costs for taxpayers.\textsuperscript{9} It is now known that business case forecasts of inflation were systematically underestimated by public authorities, many of which are now obliged to pay significantly higher unitary fees than government agencies had budgeted for (Cuthbert and Cuthbert 2011). The planning fallacies/ strategic misrepresentation - and indeed the speculative activities of some public authorities - have had negative consequences now that projects are operational, and a large number of health care providers in England have experienced financial difficulties as a consequence of their actions. One such authority, the South London NHS Trust, has been placed into administration, largely due to accumulated debts owed to health care purchasers (Stacey and Kuchler 2012).

In developing contexts, where the discretionary portion of the budget is small (being accounted for expenditure items such as salaries of civil servants, debt-service payments and pensions that cannot be adjusted on an short-term basis), the impact of such distortions is likely to be much more severe than in a well-resourced health care system like the UK’s National Health Service. In Africa, the available financial margin of manoeuvre for most governments has been estimated at no more than 5% of total annual expenditure (Schiavo-Campo 2007). As a result, any significant adjustment of expenditures must take place over a

\textsuperscript{8} On a transaction in which revenues increase over time at the rate of inflation, the lenders’ cover ratio (i.e. the excess of cash-flow over scheduled debt payments) can be met within the context of a lower initial unitary charge than would pertain with proportional indexation. Over the period of the contract, the charge remains level in real terms but in later years will be higher in nominal terms than would be the case for non-indexed funding. This reflects the facts that: (i) the loan is being paid more slowly; and (ii) more interest is paid in total.

\textsuperscript{9} Recognising this, it is common for investors and banks to mitigate inflation risk via inflation-indexed loans and/ or RPI swaps. The latter solution significantly increases the public sector’s cost of terminating the contract (i.e. because breakage costs increase over the contract period) and involve the payment of additional fees and premiums. The cheapest and most risk-free way of dealing with inflation is to balance the period fee between fixed and inflation-linked proportions which match the SPV’s own exposure to fixed and inflation-linked costs.
period of several years, and where budgetary processes fail to take account of the potential real-terms costs of projects, this may impact on the sustainability of the health care system.

5. Conclusion

The International Finance Corporation, part of the World Bank Group, has made strong claims that investing in public-private partnerships will improve efficiency and effectiveness in the health sector (IFC 2007). Currently, these claims cannot be supported by convincing empirical evidence, while the theoretical research reviewed in this paper suggests the micro-economic case for such partnerships is ambiguous. Where it is easy to specify, measure, and monitor services, the adverse effects of private ownership, bundling and risk-transfer on the quality of services can be curtailed. Yet specifying and measuring verifiable performance indicators that can be used to reward and penalise a provider of complex clinical services is difficult to achieve. As contracts will be incomplete, service quality is at risk. Only where the performance of existing public provision is very poor, and purchasers are able to specify, measure and verify an operator’s performance does theory indicate that an integrated partnerships approach will be socially optimal. Even in this case, the value for money of the approach is in question. A broad range of exogenous variables will determine the prices achieved through what is likely to be a concentrated market for bidders and market for debt finance that is capital- and liquidity-constrained. Finally, because of their long-term and complex nature, integrated partnerships present particular challenges in the assessment of fiscal risks, and there may be inadequate knowledge and/ or incentives to do this objectively. In developing contexts, the impact of poor budget planning and execution can be severe, and it is not clear that such problems can be addressed by available sources of technical expertise.
References


Stacey, K and Kuchler, H (2012), ‘NHS Trust to be placed into administration’, Financial Times, 26th June, p.3.


