Abstract

General Practitioners and primary care physicians have a pivotal role in the allocation of health care resources in most countries. With increasing costs of care, they have therefore become a significant focus for healthcare reform in the pursuit of increased efficiency. For example, the United Kingdom (UK), United States of America (USA), New Zealand (NZ), Germany and The Netherlands, have all pursued reforms introducing explicit budgetary responsibilities for primary care. While there is a common set of objectives underlying such budgetary responsibilities, different versions have been introduced to reflect specific health environments. As most of these reforms were introduced in the early to middle 1990s, it is timely to examine their impact on efficiency. This paper therefore provides an econometric assessment of the effect of budgetary arrangements in the UK, USA, NZ, Germany and The Netherlands on the growth of primary care expenditure and flow-on costs (as proxied by pharmaceutical expenditure), as proxy indicators for efficiency. The results suggest that for all countries there is some support for efficiency improvements through the implementation of budgets for primary care.

Keywords

Primary care reform · Efficiency · Econometric · Budget-holding

Introduction

Governments are increasingly looking to improve efficiency in health care. Increased (regulated) competition in health care has been suggested as a potential solution [1]. As a consequence, reforms drawing on competitive characteristics, such as ‘managed competition’ in The Netherlands and Germany, the purchaser-provider split in the UK and New Zealand, and the spread of managed-care arrangements in the USA, have been adopted or encouraged. While these reform models are all distinctive, reflecting each country’s specific health care arrangements, there is nevertheless a common focus on the promotion of stronger primary care arrangements, with an element of devolved budgetary responsibility. As most of these reforms were introduced in the early to middle 1990s, it is timely to examine their impact on efficiency.

This paper therefore provides an econometric assessment of the effect of budgetary arrangements in the UK, USA, NZ, Germany and The Netherlands on the growth of primary care expenditure and flow-on costs (as proxied by pharmaceutical expenditure), as proxy indicators for efficiency. Following this introduction, subsequent sections outline: (a) the incentives created through the introduction of budgetary responsibilities in primary care, and compares it with such models introduced in practice, examining the economic incentives stemming from such arrangements; (b) the development and testing of an econometric model, using panel data for the respective countries, to evaluate the impact of such budgetary responsibilities (building upon previous models [2, 3, 4]); and (c) the results of the analysis and the implications for countries wishing to implement similar reforms.

Budgetary models and incentives in theory

The concept of budgetary responsibility is not new in health care [5]. However, during the 1990s proponents of reform suggested that health care organisation may most effectively be arranged through the use of government regulation, in combination with market competition [1, 6]. This generated the emergence of a ‘dominant paradigm’ for the industrial world, built upon the idea of competing ‘budget-holding’ entities responsible for the health care provision of their enrolled patient populations [7]. Although there is no consensus regarding the precise form the budgetary...
model should take, there are two distinguishing characteristics of any budgetary model, discussed below.

First, any budgetary model will require a defined budget for the funding/provision of a range of specified health care services. Thus, how the budget is set will have a key impact on the ultimate incentives that dominate. It is important that the resulting budget provides an adequate reflection of the overall health status of the patient population that it seeks to fund. Frequently budgets for primary care are based on: (a) historical levels of activity (i.e. the previous year's level of service utilisation); (b) capitation formula (i.e. a fixed payment per individual) with this occurring mainly when patient registration or enrolment exists; and (c) a mixture of the two [8, 9, 10]. However, care is required with all these approaches, as if inappropriate budgets are set the economic incentives affecting physicians activity will be sub-optimal. For instance, where budgets are based on historical levels of activity, service utilisation in one year may not be an accurate reflection of future care provision, and as a consequence setting of budgets can either overestimate or underestimate the true cost of care [11]. Similarly, for capitation, it is important that the appropriate ‘risk-rated’ payment occurs; otherwise incentives may exist for physicians to select low-risk patients for treatment, if capitation payments do not cover costs.

Second, a degree of financial responsibility, or ‘risk-sharing’, for any overspends/underspends resulting from the care prescribed is required. This will determine, or be determined by, the primary objective of the model. For example, if budgetary models are introduced without risk-sharing arrangements feeding through to those practitioners making decisions, it is likely that cost-containment objectives will dominate. This is because, economic theory suggests, imposing budgets through capping expenditure is, at best, a ‘crude’ cost-cutting measure [12], as few incentives are provided for practitioners to change behaviour, given that they are not directly affected by budgetary overspends/underspends. The introduction of ‘risk-sharing’ incentives (see below) is therefore important for the encouragement of efficiency.

The scope of services covered within the budget is also likely to have a bearing on efficiency. The more services that are covered, the greater is the opportunity for care substitution within budgetary constraints, theoretically encouraging more efficient care provision. This compares with partial budgetary arrangements, whereby only a selection of services (e.g. pharmaceuticals, pathology) are covered. This may simply lead to cost-shifting by physicians, where patients are encouraged to go elsewhere for treatment not covered by budgets, thus reducing efficiency incentives [13].

The delegation of risk is also very important in determining efficiency. The main way through which risk is delegated to practitioners is through making them accountable for budgetary underspends/overspends. If the practitioner is responsible for the resource allocation implications of the care prescribed (for instance, through being allowed to keep ‘budgetary surpluses’ (subject to specific regulations) or being penalised for overspending), the physician will face a direct economic incentive to change behaviour. In particular, such risk-sharing arrangements will encourage efficiency by providing incentives to provide the most cost-effective patient care and service substitution between alternative types of care provision within the budget (subject to the scope of services within the budget) [12].

Whilst, therefore, there is no single budgetary model for primary care, efficiency incentives will be promoted if: (a) budgets correctly reflect the appropriate risk-status of the defined population; (b) total, rather than partial, budgetary arrangements exist (diminishing the potential for cost-shifting); and (c) appropriate risk-sharing arrangements are established between funders and physicians responsible for providing care within defined budgets.

### Budgetary models in practice

While there is a common set of basic principles and objectives underlying the theoretical budget-holding model, different countries have adopted different versions, theoretically having implications for the resulting economic incentives. Some of the defining cross-country features are discussed below.

#### United Kingdom

Budgetary reforms through the General Practice Fund Holding (GPFH) scheme were introduced in the UK in 1991, through the establishment of the ‘internal market’ (‘purchaser-provider split’) [14]. Within this arrangement participating GPs were allocated budgets for an extensive range of hospital, pharmaceutical and investigative services. Funding of budgets was initially set according to historical levels of spending but by the scheme’s end was provided through a mix of historical activity and risk-adjusted capitation. Initial GPFHs were required to have enrolled populations of around 9,000 patients (defined geographically), although by 1998 smaller enrolments were allowed (provided GPFHs ‘banded’ together). Risk-sharing arrangements were established such that GPs were responsible for any resulting budgetary over/underspends, with GPFHs allowed to spend budgetary surpluses in defined areas (e.g. practice improvements). However, this risk-sharing arrangement was mitigated through a ‘stop-loss’ arrangement, with the government bearing any costs of care for patient expenditure beyond £5,000 [15].

In 1997, with the change of Government, revisions to the internal market changed these arrangements [16]. In 1999 the GPFH scheme was replaced, with the formation of primary care groups (PCGs) which are responsible for the provision of an extensive range of healthcare services for defined populations of approximately 100,000 persons [17]. Key budgetary incentives remain, albeit at a higher level than GPFH, with PCGs responsible for budgets totaling around £19 billion. Risk-sharing arrangements continue, with PCGs responsible for any surpluses/deficits (although the stop-loss arrangements have been curtailed), with the arrangements for sharing residual amounts among practices within the PCG more complex [18, 19].

#### United States of America

In the USA budgetary responsibilities for primary care are accorded through managed care organisations (MCOs), which cover a variety of organisational entities ranging from health maintenance organisations (HMOs) to pre-