The World Bank, through a grant from the Government of Norway, has launched several PBF initiatives in developing countries, systematically accompanied with an impact evaluation strategy using different innovative research designs.[11] These initiatives should include formative research to address the rapidly changing social and political context that may influence policy implementation.[12]

The debate around PBF should be evidence-based with critical appraisal. Both proponents and opponents should avoid taking a dogmatic position. Both parties have agreed that PBF is not a panacea. The provision of input items and other key interventions, such as provider training, supervision and health-system strengthening, should continue with the aim of producing results. A research agenda and an effective community of practice embracing all views on PBF is critical to understanding more about its potential for helping developing countries to reach some of the United Nations Millennium Development Goals. ■

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Looking at the effects of performance-based financing through a complex adaptive systems lens

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The debate on PBF is misdirected. As is too often the case in international aid financing, agencies try to prove the effectiveness of their contribution by isolating it as the main reason for success.[1] In reaction, opponents will often use the same approach in an attempt to prove that another factor is actually the cause of an observed change. We argue that this endless and futile debate, often present among experts in health systems strengthening, will not contribute to improving public health in low-income countries.

Rather than searching for the impossible proof of whether PBF works or not, we should instead try to learn useful lessons from experiences. We agree with Ireland et al. that the focus of PBF assessment should be on "why" and "how" the intervention works.[2] Comprehensive evaluation of PBF is needed as part of complete health system reform.

We think that, to respond to some of these key questions, health systems should be analysed using a complex adaptive systems lens, as others have advocated in the past.[3,4] A complex adaptive system is a collection of interacting components, each of which has its own rules and responsibilities. The behaviour of this kind of system is different to the sum of the behaviour of each of its components. Examples of complex adaptive systems include the human brain, ecosystems and manufacturing businesses.

Health system "behaviour" and particularly counterintuitive behaviour (unexpected changes or lack of change) can be analysed using a complex adaptive systems lens when PBF is introduced, often with a mix of other interventions such as in a context of system reform. The purpose of this analysis is not to isolate causal factors but rather to identify "macro" characteristics of the system that may explain behaviour change.

Although it has often been ignored in health system evaluation, social simulation can be useful for this approach. The most frequently used technique, agent-based modelling, uses computer simulation centred on a collection of autonomous agents whose interactions are based on a set of rules. These simulations can integrate empirical data or existing knowledge or opinions.[5] One of the powerful features of agent-based modelling lies in its capacity to study complex phenomena in a simple and flexible way. Indeed, this approach does not require a high level of mathematical or programming skills, making it accessible to many researchers. Furthermore, it allows for an iterative learning process that is easy to set up compared to long and costly data collection processes.

While this methodological approach may not "prove" the effectiveness of an intervention, it could provide insight into the reason a health system behaves in a given way (whether it changes or remains in a steady-state) when PBF is introduced. We believe that this type of information, although maybe less appealing to the usual stakeholders in development aid debates, is much more useful in evaluating PBF. ■

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Why there is so much enthusiasm for performance-based financing, particularly in developing countries

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One of the strengths of PBF is its flexibility. Adherents to PBF continuously seek improvements in theory, best practice and instruments. The contributions of Ireland et al.[1] and Kalk[2] in response to the excellent paper from Meessen et al.[3] are therefore welcome. However, some of their points of criticism are based on misunderstandings and they transpose assumptions about behaviour in high-income countries to low-income settings. Ironically, their criticism only strengthens the case for PBF, since the mentioned authors do not propose any alternative for PBF but linger in the status quo, which most people would agree is detrimental to development and health.

Since PBF was first used around 15 years ago, there has been an open debate about its pros and cons. There has been criticism that incentive payments focused too much on quantity and not on quality. We subsequently adapted the incentives towards improving quality with very favourable results shown in recent evaluations from Burundi,[4] Democratic Republic of the Congo[6] and Rwanda.[5]

Another point of criticism has been that activities subsidized by PBF were limited to only 6–10 indicators and thereby ignored other health facility activities. In response, for example, the national PBF programme in Burundi introduced 48 indicators (24 at primary and 24 at hospital level). Equity was also a major and shared point of concern. In response, we introduced new PBF mechanisms such as bonuses for remote provinces and health facilities, quality improvement units for dilapidated health facilities as well as individual equity funds. Due to its purposeful broad orientation to health reforms, PBF also developed performance framework contracts for regulators to assure, for example, the quality of pharmaceuticals in a competitive market.

Internal criticism has included evaluations showing that there is a need for more effective community PBF approaches to promote household hygiene, sanitation and birth spacing.

This openness to constructive criticism explains why there is enthusiasm for PBF, particularly in developing countries, and there is little sympathy for the ideas of Ireland et al. and Kalk. Twenty-two African countries have adopted PBF, are conducting pilots or are planning to start and all this without much external push or promotion. After reflection on the papers from Ireland et al. and Kalk, we conducted a small survey of 38 health workers in Burundi. We asked them whether they would want to abandon PBF and the answer was a wholehearted "no." This is because PBF is a flexible system that allows health workers, who better serve the public interest, to receive appropriate payment. PBF grants power to autonomous health facilities to make decisions instead of central bureaucrats. It sensibly proposes checks and balances in health systems by separating regulation, input distribution systems, provision, purchasing and fund holding and strengthening community voice empowerment.

Criticism, therefore, has always been embraced. Some criticism, however, is unfounded such as the suggestion that workers in PBF believe that it is a magic bullet. Yes, we deem PBF to be a broad approach, but one that consists of numerous incremental and sensible steps towards improving the health system, with little magic about them. In addition, Ireland et al. wrongly argue that PBF only works in "stable Rwanda" while recent evidence strongly suggests that it is effective in failed states such as the Central Africa Republic and the Democratic Republic of the Congo. We appeal to all colleagues to continue an open scrutiny of PBF; it is the only way forward. However, in doing so, let us work with state-of-the-art evidence and not with mere personal opinion. ■

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