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**Article (Accepted version)
(Refereed)**

Original citation:

Wouters, Olivier J. and McKee, Martin (2016) *Private financing of health care in times of economic crisis: a review of the evidence*. *Global Policy* . ISSN 1758-5880
DOI: [10.1111/1758-5899.12211](https://doi.org/10.1111/1758-5899.12211)

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Available in LSE Research Online: April 2016

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Private financing of health care in times of economic crisis: a review of the evidence.

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Abstract

Many high-income countries have cut public health-care spending since the global economic downturn in 2008. In some cases these cuts have been accompanied by calls to expand private financing to improve the efficiency of health systems. In low- and middle-income countries seeking to increase access to health care, it is sometimes suggested that private financing is more effective than public financing because of weak state institutions and bureaucratic shortcomings.

In this paper, we review the theoretical and empirical evidence on private financing in terms of cost, efficiency, equity, and financial protection. We consider private health insurance, medical savings accounts, and user charges in high-, middle-, and low-income countries.

The theoretical and empirical evidence reveals major market failures in the health sector. It is unlikely that private financing generates better results than public financing. Still, as private financing options are heterogeneous, it is possible that a particular form might play a beneficial role in a specific setting. Given the current state of knowledge, however, any calls to increase private financing must be accompanied by robust evidence, such as real-world pilot studies.

Background

Many high-income countries have cut public health-care spending since the global economic downturn in 2008 (Cylus et al., 2012; Reeves et al., 2014). In some cases these cuts have been accompanied by calls to expand private financing to improve the efficiency of health systems (Reynolds and McKee, 2012). In low- and middle-income countries seeking to increase access to health care, it is sometimes suggested that private financing is more effective than public financing because of weak state institutions and bureaucratic shortcomings (Pauly et al., 2006). These trends have fuelled debates about how to fund health systems sustainably. Although these debates are sometimes ideological, reflecting different views about the relationship between the individual and the state, they need to be evidence-based.

In this paper, we review the theoretical and empirical evidence on private financing in terms of cost, efficiency, equity, and financial protection. We consider private health insurance, medical savings accounts, and user charges in high-, middle-, and low-income countries. There are similar debates about the role of the state in other parts of health systems, such as service delivery by physicians and institutions, procurement of health system inputs, and professional education (Hsiao, 1995), but these are beyond the scope of this paper.

Private health insurance: theoretical evidence

The theoretical deficiencies of unregulated private health insurance (PHI) markets are well-documented (Arrow, 1963; Hsiao, 1995; Barr, 2004). Most commentators agree that PHI systems must be regulated to some extent, although the scale and nature of such regulation are rarely specified. One important concern is information asymmetry between patients and insurers. Individuals know more than insurance companies about their health and the aspects of their lifestyles that increase the risk of disease or injury. Consequently, patients may buy insurance plans that are underpriced (i.e. adverse selection). Individuals may also engage in riskier behaviour or seek more treatment than they would if they were uninsured (i.e. moral hazard) (Pauly, 1974).² Both adverse selection and moral hazard prevent insurers from accurately estimating whether enrollees are at high or low risk of needing health care – a necessity for setting actuarially-fair premiums.

This leaves insurance companies with two main options. They can charge average premiums to groups consisting of both low- and high-risk individuals to pool risks. Low-risk patients will face disproportionately high premiums and may leave the schemes; the remaining high-risk patients will then face increasing prices and may eventually forgo insurance. This is known as a premium spiral. Alternatively, insurers can try to separate low- and high-risk individuals into different plans. Insurers can then offer lower premiums to healthier individuals to retain these clients. For example, insurers can raise the premiums of patients with chronic illnesses. Insurers may even choose not to cover these patients or the care related to their known conditions. The

lack of cross-subsidisation from the rich and healthy (usually low-risk) to the poor and sick (usually high-risk) is highly regressive (Barr, 2004).

Insurers can further limit their exposure to risk by reducing benefit packages or imposing spending caps. Both expose patients to potentially severe financial risks. This not only threatens the solvency of individuals and households, but also has adverse macroeconomic effects. For example, it could increase demand for poverty alleviation programmes and distort the balance between saving and consumption (Cheung and Padieu, 2013).

For an insurance market to operate efficiently, patients must be able to switch insurers easily. This should incentivise companies to compete based on premiums, benefits packages, and other plan features (Thomson et al., 2013a). However, there are entry barriers for insurance firms, notably substantial equity capital and technical expertise. There have been documented cases of insurers forming cartels and exploiting their market dominance, which reduces the competitiveness of the insurance market (Hsiao, 1995).

Transaction costs are also an issue. Private insurers must continuously monitor and assess the risk of their enrollees. Insurers spend money on marketing their products. These costs are not incurred by statutory universal systems.

In short, market failures in the health sector may undermine PHI. Theory predicts that insurers will seek to maximise their client base and minimise unquantifiable risk. They should compete for individuals at all levels of risk, given the ability to match premiums to risk. However, high-risk individuals usually have complex disorders and comorbidities, and their risk is often least predictable. Insurers may seek to exclude patients with pre-existing health conditions from coverage. If these patients are to obtain coverage, the state or some well-funded entity must be the insurer of last resort. This is, in effect, the role in the USA of Medicare – a publicly-funded insurance programme for people age 65 and older – and Medicaid – a publicly-funded insurance programme for low-income individuals and families. The financial burden of these two high-risk and high-cost groups is incurred by the public sector.

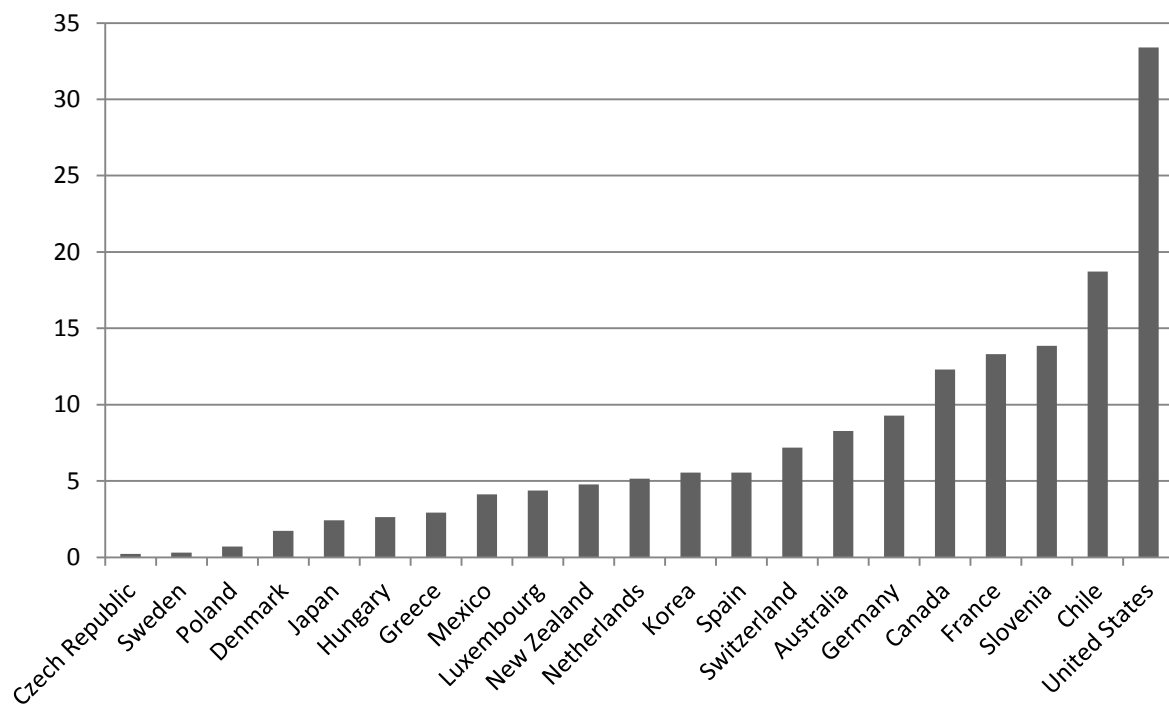
PHI: empirical evidence from high-income countries

The validity of these theoretical issues is supported by empirical evidence from the USA, where PHI is the main source of health-care funding for those of working age. Prior to the Patient Protection and Affordable Care Act¹ about one out of six Americans were uninsured (DeNavas-Walt et al., 2012), and one study estimated that 62.1% of personal bankruptcies in 2007 were due to medical costs (Himmelstein et al., 2009). Meanwhile, the USA spends the most per capita on health care in the world, accounting for 17.9% of gross domestic product (GDP) in 2012 (World Bank, 2014). It is widely-acknowledged that market failures contribute, at least in part, to high private health expenditure and numbers of uninsured patients in the USA (Maynard and Dixon, 2002). It is unclear whether private insurers outperform public insurers in containing costs, with some evidence suggesting that Medicare is better able to control costs than private

insurers (Boccuti and Moon, 2003). The authors attributed this finding to the ability of Medicare – a single purchaser for a large number of patients – to drive prices down aggressively for the products and services it covers.

The high health spending in the USA fails to achieve commensurate outcomes. The country ranks low among member states of the Organisation for Economic Co-operation and Development (OECD) on various health-care quality indicators, including deaths due to medical errors, avoidable mortality rates, and maternal death rates (Nolte and McKee, 2003; Nolte and McKee, 2008; Jost 2007). A recent international survey by the Commonwealth Fund found that 75% of American adults believe that their health system requires fundamental changes or should be rebuilt. This was a higher proportion than in any of the ten high-income comparison countries (Schoen et al., 2013).

Figure 1. Size of private health insurance markets (% of total health expenditure) in selected OECD countries (2012)



Notes: 2012 data were unavailable for Australia, Japan, the Netherlands, New Zealand, and Spain; 2011 data were used for these countries.

Source: OECD Health Statistics (2014)

In the European Economic Area, PHI plays a secondary role to statutory health insurance (*Figure 1*). In these countries, PHI is substitutive, complementary, or supplementary (*Figure 2*) (Thomson and Mossialos, 2004). In a substitutive scheme, coverage is limited to individuals who are excluded from or opt out of statutory health insurance. In Germany, for example, about 11% of individuals – mostly high earners – opt out of social insurance in favor of private insurance. In a complementary scheme, it is used to pay for services that are not covered by statutory health insurance, such as

dental care or co-pays for medicines. In France, over 96% of the population has complementary insurance to cover user charges. In a supplementary scheme, PHI enhances consumer choice of health products and services. For example, patients may have access to quicker care, more health-care providers, or better hospital amenities (e.g. a single room).

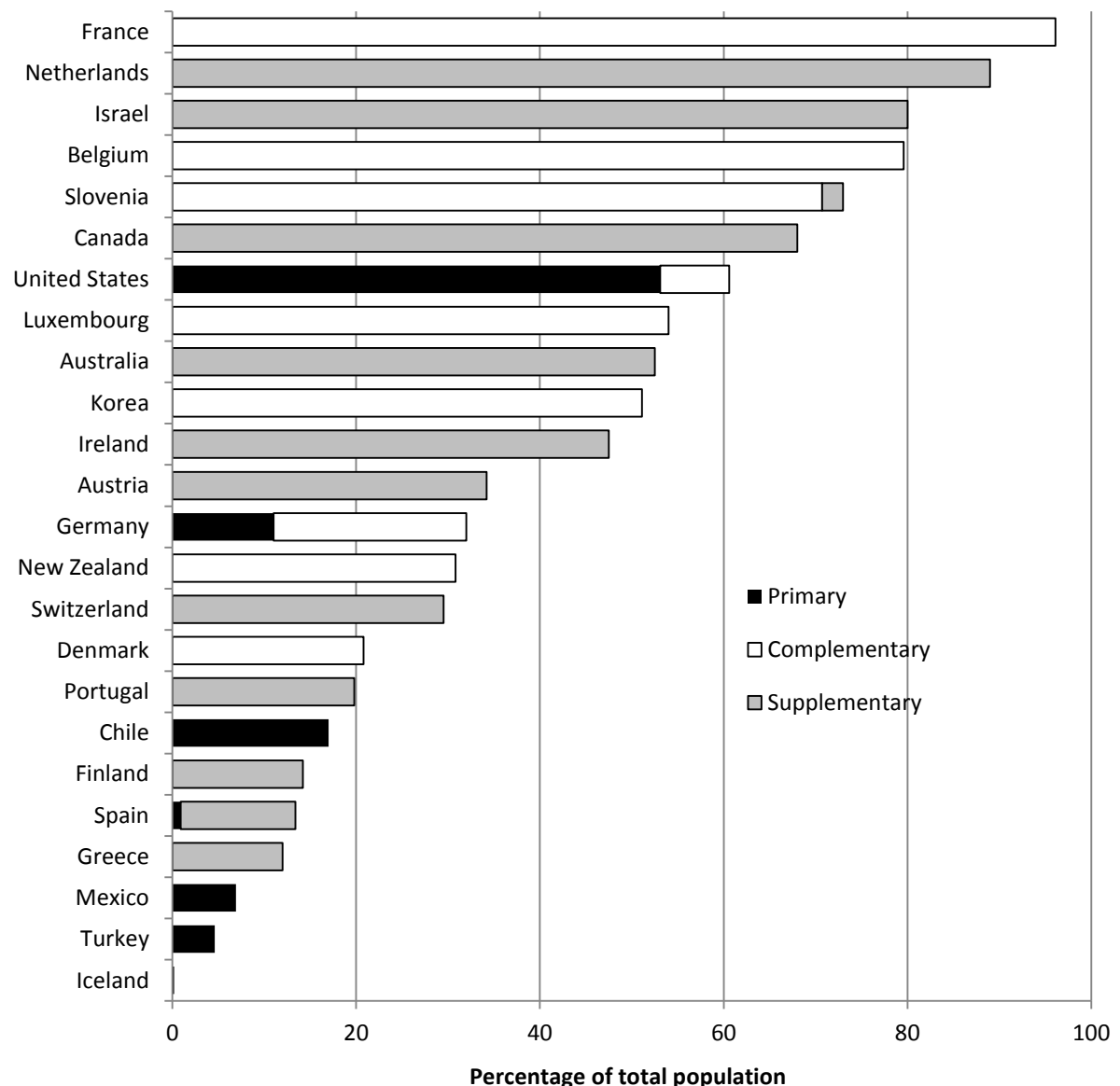
Unlike the rest of Europe, the Netherlands and Switzerland have privately-administered health insurance schemes, coupled with public oversight. Both systems have measures to correct the shortcomings of PHI and operate like social health insurance. For example, the Swiss and Dutch authorities require universal coverage to limit adverse selection (i.e. there is a mandate that every person must buy a basic plan), with subsidies for low-income individuals; supplementary insurance is available. Insurers are legally-bound to charge a single rate for defined populations (e.g. all residents of a Swiss canton), also known as community rating. Both countries force insurers to cover patients with pre-existing health conditions, as well as high-risk patients like the elderly and the unemployed. Government authorities in each country also apply risk-equalisation formulas to alleviate the financial burden on insurers that cover more high-risk individuals (Reinhardt, 2004; Leu et al., 2009; Cheng, 2010).

The regulation needed for PHI markets to operate efficiently is likely to add considerably to administrative costs (Woolhandler et al., 2003). According to the most recent data from the OECD, the Netherlands and Switzerland have two of the four most expensive health systems in the European Economic Area – measured in terms of total health expenditure as a percentage of GDP. It is also difficult to correct all of the shortcomings of PHI through regulation (Thomson et al., 2013a; van de Ven et al., 2013). Hsiao (1995) reviewed the empirical evidence from high-income countries on whether measures intended to correct the failures of PHI achieve their objectives. He concluded that while some measures are usually effective (e.g. compulsory universal coverage), others are only moderately effective or ineffective (e.g. community rating).

The data from Europe indicate that PHI generally leads to inequitable access to health care, does not contain costs or increase efficiency, and undermines the financial stability of statutory health insurance (Mossialos and Thomson, 2002; Thomson and Mossialos, 2004). Other countries that rely on PHI to varying extents, such as Australia and Chile, have encountered similar issues (Hall et al., 1999; Sapelli, 2004; Armstrong et al., 2010). However, the impact of PHI varies depending on the type of PHI, the regulatory environment, and the relationship between the private and statutory systems (Colombo and Tapay, 2004).

As PHI systems are heterogeneous, it is necessary to assess the strengths and weaknesses of individual systems. As described above, PHI schemes in some countries are heavily regulated and closely resemble social health insurance. In others where the insurance markets are less regulated, the adverse effects of PHI on costs, efficiency, equity, and financial protection seem to outweigh the benefits.

Figure 2. The % of the population with PHI coverage (by insurance type) in selected OECD countries (2011)



Notes: Primary PHI includes substitutive schemes. The plans in Denmark, Israel, Korea, the Netherlands, New Zealand, and Switzerland may include both complementary and supplementary benefits. 2011 data were unavailable for France and Switzerland; 2010 data were used for France and 2007 data for Switzerland.

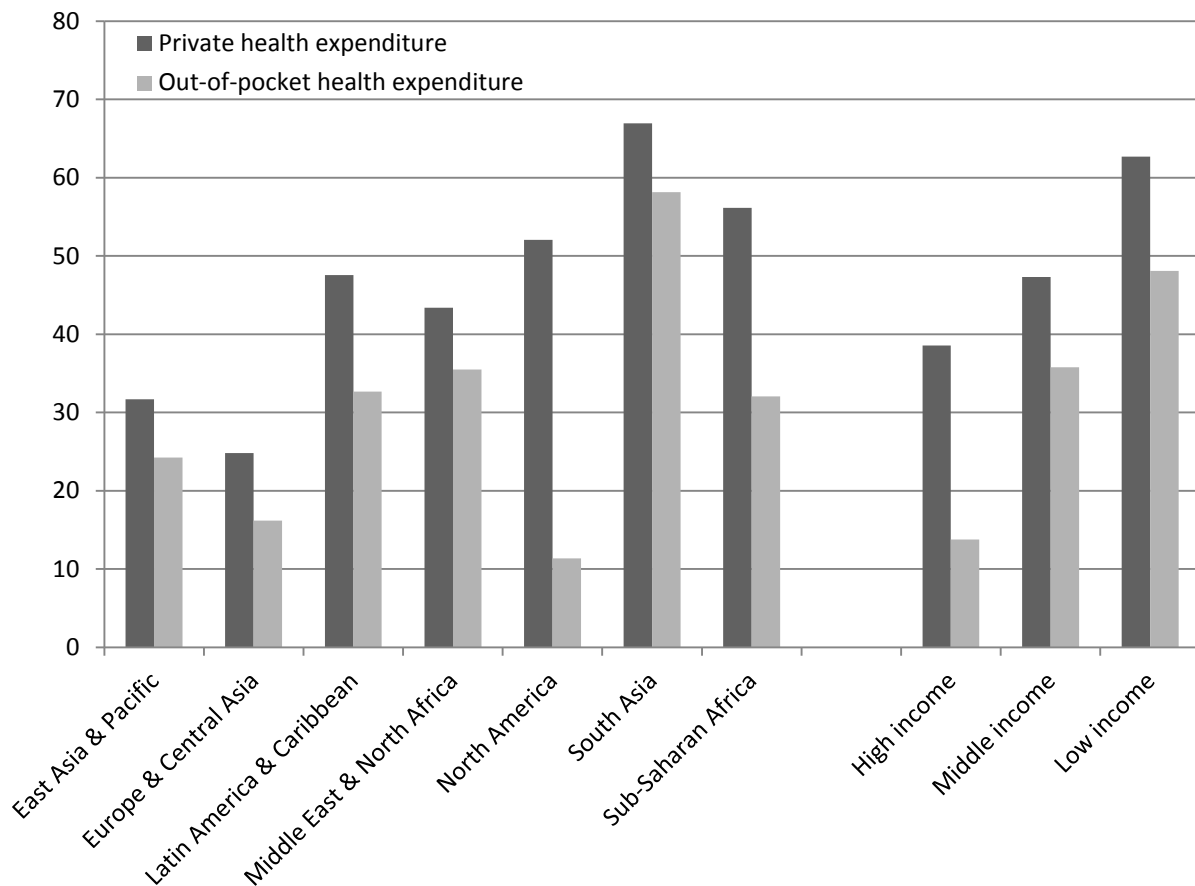
Source: Adapted from OECD *Health at a Glance* (2013)

PHI: empirical evidence from low- and middle-income countries

Some commentators have proposed PHI as a stepping stone on the path to universal health care in developing economies (Pauly et al., 2006; Pauly et al., 2009). PHI currently plays a modest role in low- and middle-income countries, generally covering <10% of individuals. The main exceptions are Brazil, Namibia, South Africa, and Zimbabwe, where private insurers account for >20% of total health expenditure (Sekhri and Savedoff, 2005). Proponents of PHI argue that it is the best starting point for risk pooling in developing countries, given large informal economies, inefficient taxation

mechanisms, high out-of-pocket spending (*Figure 3*), and corruption. Publicly-financed systems, they argue, are potential long-term options. Advocates also note that PHI systems preceded publicly-financed systems in many Western European countries, cited as evidence that PHI may be a prerequisite for tax-financed or social health insurance (Sekhri and Savedoff, 2005).

Figure 3. Public-private mix of funding (% of total health expenditure) by region and by income group (2012)



Source: World Bank (2014)

One of the most common applications of PHI in low- and middle-income countries is community-based health insurance – small, autonomous PHI schemes run by individual communities that can potentially be scaled up (Carrin et al., 2005). It has grown in popularity over the past two decades, and the success reported from Rwanda with this type of insurance has led to calls for its more widespread use. A systematic review of the literature found mixed evidence on the costs and benefits of these schemes. While they may improve financial protection and reduce out-of-pocket spending, there is little evidence that they improve health-care quality or efficiency (Ekman, 2004). The review concluded that "these types of community financing arrangements are, at best, complementary to other more effective systems of health financing."

The experiences to date with community-based health-insurance schemes, including those in Kenya and Uganda, suggest that they are often inefficient and unsustainable. Many of the schemes are small-scale and lack adequate funding, risk pooling, and governance (Carrin et al., 2005; Basaza et al., 2009). In addition, it is worth noting that the Rwandan system is heavily regulated by the government and bears strong resemblance to social health insurance: there is high uptake of the community schemes due to various incentives, the central government and donors provide stewardship and financial and institutional backing, and the central government redistributes some of the pooled funds between communities (Logie et al., 2008; Ministry of Health of the Republic of Rwanda, 2010; Lu et al., 2012). Rwanda has deviated substantially from the traditional model of community-based health insurance, as applied in other settings.

The potential benefits of PHI in developing countries must be carefully weighed against the possible drawbacks. The introduction of PHI may lead to a two-tiered system that exacerbates social inequality, which may be difficult to correct later on (Hsiao, 1995). This is especially problematic in countries that are divided on ethnic, linguistic, religious, or economic grounds, where one group can disproportionately access private insurance. The empirical evidence indicates that such countries are less willing to invest in public goods that will benefit the general population (Powell-Jackson et al., 2011). The emergence of a private system may also entrench the power of insurers to block changes to the system that are not in their best interests (Hsiao, 1995).

Overall, the evidence is inconclusive on whether it is better in the short- and long-run to introduce public- or private-sector models in developing countries to promote equitable, efficient, and sustainable health systems. However, one study has found that higher government revenue from progressive taxes (e.g. capital gains, profits, and income) is associated with greater progress towards universal health coverage, based on data from 89 low- and middle-income countries (Reeves et al., [forthcoming](#)). If developing countries are to introduce public-sector models, it will require strong political leadership, technical assistance, capacity development, and foreign aid (Hsiao, 1995; Hsiao, 2014). There are a number of country experiences that offer valuable lessons, including the health extension programme in Ethiopia, the 30-baht financing scheme in Thailand, and the construction of health facilities in India (Tamil Nadu) and Bangladesh (Balabanova et al., 2013). Countries that have expanded coverage at a low cost have been characterised by political commitment, strong leaders who have taken advantage of windows of opportunity, and stable and effective institutions. These success stories have been marked by sustained investment in training, infrastructure, and management.

The way forward: consumer-directed health care and cost sharing?

Other options have attracted attention as alternatives to PHI. In recent years, the USA – one of the countries that experiments most actively with market-based approaches – has seen the rise of so-called consumer-directed health care (Antos et al.,

2012). The premise is simple: instil responsibility in patients for their own health spending and incentivise them to use health care efficiently.

Consumer-directed health care has primarily taken the form of medical savings accounts – also called health savings accounts – which are earmarked funds that patients can withdraw from to pay for health care. Each individual or family contributes to their own account and also receive funds from the government. There is no risk pooling between individuals. The accounts are usually coupled with high-deductible insurance to protect against health-care bills that would lead to financial ruin. Medical savings accounts are only used in China, Singapore, South Africa, and the USA. Most of the evidence suggests that medical savings accounts are inequitable, do not provide adequate financial protection, fail to contain costs, and do not promote efficiency (Wouters et al., forthcoming).

In Singapore, where medical savings accounts have been longest established and most closely studied, they cover a small share of total health expenditure. Patients in Singapore spend more out-of-pocket – as a percentage of total health expenditure – than patients in any other high-income country. The medical savings accounts in Singapore are also backed up by several schemes, including high-deductible insurance against catastrophic costs and a safety net for indigent patients (McKee and Busse, 2013).

Many countries also rely on cost sharing – deductibles, co-insurance, co-pays, or any combination of these – to try to limit moral hazard and generate revenue for the health system (Thomson et al., 2010). Advocates of user charges argue that when insurers cover all or most of the costs of health care, patients are less cost-conscious and more likely to over-utilise health care. They contend that cost sharing sends consumers more accurate price signals and improves the efficiency of health systems. Opponents claim that cost sharing is highly regressive, as it only targets those who use health care – mostly low-income individuals. Critics also stress that it can dissuade patients from seeking necessary treatment (Bloche, 2007).

There is considerable evidence, including data from the RAND Health Insurance Experiment, a large-scale randomised controlled trial, that cost sharing leads to indiscriminate cuts in utilisation: it reduces the use of both unnecessary and necessary health care (Newhouse, 1993; Buntin et al., 2006; Goldman et al., 2004; Goldman et al., 2007; Austvoll-Dahlgren et al., 2008; Trivedi et al., 2008; Buntin et al., 2011; Fung et al., 2014). Individuals should be exempt from cost sharing based on age, income, disease type, and other appropriate criteria (Austvoll-Dahlgren et al., 2008). In many countries, for example, treatments for life-threatening and chronic illnesses are not subject to cost sharing.

A recent innovation has been "value-based" cost sharing – cost sharing that is structured in a way that is intended to only discourage the use of low-value care (Chernew et al., 2007). For instance, an insurer may exempt preventive services (e.g. immunisations) from cost sharing, charge higher co-pays for patients who buy branded medicines when cheaper generics are available, or reward patients who participate in health-promoting activities (e.g. smoking cessation programmes) (Thomson et al., 2013b). There are practical and ethical problems with differentiating high- and low-

value care, such as whose values to consider. It is not yet clear in what instances value-based cost sharing is a viable option, and the results to date have been mixed (Chernew et al., 2008; Thomson et al., 2013b; Maciejewski et al., 2014).

Many developing countries face unique challenges when considering cost sharing: extreme poverty, chronically-underfunded health systems, and weak taxation mechanisms. A systematic review of the effect of cost sharing on health service use in low- and middle-income countries found little high-quality evidence (Lagarde and Palmer, 2011). Studies have generally found that introducing or increasing user fees leads to lower use of curative and preventive services; removing or decreasing user fees leads to greater use. The long-term effects of these policy changes are unclear, however, and there are few studies of the impact of user fees on medication use and quality of care. More research is needed to outline the optimal role for cost sharing in resource-poor countries.

In theory, consumer-directed health care and cost sharing could succeed under certain conditions. First, patients must have access to information about the price and quality of health care to make informed decisions. It is often difficult or impossible for patients to obtain these data (Reinhardt, 2006). Second, patients must be able to distinguish between low- and high-value health care. In reality, few patients are qualified to judge their care needs, which may result in worse health outcomes and higher costs in the long-run (Bloche, 2007). Third, complementary supply-side policies are needed to contain costs. For example, consumer-directed health care does not prevent clinicians from ordering excessive tests, which is especially likely if they receive a fee for each service (Emanuel et al., 2012). Fourth, a national culture of individualism, personal responsibility, and saving must exist (Nichols et al., 1997). Finally, a high income per capita is required to sustain medical savings accounts.

As all of these conditions are unlikely to be met in most settings, other financing options should be considered. Alternatively, it can be argued that greater efforts should be made to fulfil these conditions. For example, institutions could systematically collect and disseminate easy-to-understand data to patients about the price and quality of health care. However, it would be important to determine the administrative costs this would entail, whether it is even feasible given the complexities of health-care decision-making, and whether all shortcomings of consumer-directed health care can be adequately addressed.

Conclusions and policy implications

Many nations are reassessing, reforming, and restructuring their models of health system financing. In high-income countries, the recent economic downturn has been used to justify austerity measures and the re-examination of market-based financing options. Proponents of private models suggest that the financial interaction of patients, insurers, and physicians should stimulate quality improvements, price reductions, and greater access to health care. In low- and middle-income countries,

there is uncertainty about whether private- or public-financing models, or a mix of the two, are the best means to reach universal health coverage.

The adverse effects of austerity on health and the limitations of private financing models are well-documented (Stuckler and Basu, 2013). Given the market failures in the health sector, it is unlikely that private financing generates better results than public financing. Governments may also use health systems to pursue equity objectives, such as income redistribution, that compete with economic efficiency goals. This is more easily achieved through publicly-financed systems. Still, notions of solidarity vary across countries, which may influence the uptake of different financing models.

During economic recessions, it is important for policymakers to withstand myopic pressures to adopt inefficient policies. One of the challenges in the policymaking arena is that changes in government can lead to pursuits of diametrically-opposed solutions, whereas more gradual and stepwise changes are generally advisable. Governments seeking to expand private financing should test their proposals in real-world pilot studies.

Notes

¹ These statistics have changed since the implementation of the Patient Protection and Affordable Care Act, which was signed into law in the USA on March 23, 2010. Most of the provisions in the law came into force on January 1, 2014.

² Moral hazard is also a potential issue in publicly-funded health systems.

Acknowledgments

We would like to thank Jonathan Cylus, Aneil Jaswal, Panos Kanavos, Philipa Mladovsky, and Gemma Williams for their useful input on earlier versions of this article. No sources of funding were used to prepare this manuscript. We declare no conflicts of interest.

References

1. Antos JR, Pauly MW, Wilensky GR. Bending the cost curve through market-based incentives. *The New England Journal of Medicine*. 2012;**367**(10):954-8.
2. Armstrong J, Paolucci F, McLeod H, van de Ven WPMM. Risk equalisation in voluntary health insurance markets: A three country comparison. *Health Policy*. 2010;**98**:39-49.
3. Arrow K. Uncertainty and the welfare economics of medical care. *American Economic Review*. 1963;**53**(5):941-73.
4. Austvoll-Dahlgren A, Aaserud M, Vist G, Ramsay C, Oxman AD, *et al* (2008). Pharmaceutical policies: effects of cap and co-payment on rational drug use. *Cochrane Database Systematic Reviews*, **23**(1):CD007017.

5. Balabanova D, Mills A, Conteh L, Akkazieva B, Banteyerga H, *et al.* Good Health at Low Cost 25 years on: lessons for the future of health systems strengthening. *Lancet.* 2013;**381**:2118–33.
6. Barr N. Chapter 5. Economic theory 2: insurance. *The Economics of the Welfare State (4th ed)*. Oxford University Press: Oxford. 2004.
7. Basaza R, Pariyo G, Criel B. What are the emerging features of community health insurance schemes in East Africa? *Risk Manag Healthc Policy.* 2009;**2**:47-53.
8. Bloche MG. Consumer-directed health care and the disadvantaged. *Health Affairs.* 2007;**26**(3):1315-27.
9. Boccuti C, Moon M. Comparing Medicare and Private Insurers: Growth Rates in Spending Over Three Decades. *Health Affairs* 2003;**22**(2):230-37.
10. Buntin MB, Damberg C, Haviland A, Kapur K, Lurie N, *et al.* Consumer-directed health care: early evidence about effects on cost and quality. *Health Affairs.* 2006;**25**(6):w516-30.
11. Buntin MB, Haviland AM, McDevitt R, Sood N. Healthcare spending and preventive care in high-deductible and consumer-directed health plans. *American Journal of Managed Care.* 2011;**17**(3):222-30.
12. Carrin G, Waelkens M-P, Criel B. Community-based health insurance in developing countries: a study of its contribution to the performance of health financing systems. *Tropical Medicine and International Health.* 2005;**10**(8):799-811.
13. Cheng TM. Understanding the 'Swiss watch' function of Switzerland's health system. *Health Affairs.* 2010;**29**(8):1442-51.
14. Chernew ME, Rosen AB, Fendrick AM. Value-based insurance design. *Health Affairs.* 2007;**26**(2):w195-203.
15. Chernew ME, Shah MR, Wegh A, Rosenberg SN, Juster IA, *et al.* Impact of decreasing copayments on medication adherence within a disease management environment. *Health Affairs.* 2008;**27**(1):103-12.
16. Cheung D, Padiou Y. Heterogeneity of the effects of health insurance on household savings: Evidence from rural China. Working Paper, Centre d'Economie de la Sorbonne, l'Université Paris-Sorbonne (Paris IV). 2003, 34 p. Available from: <ftp://mse.univ-paris1.fr/pub/mse/CES2013/13056.pdf>. Accessed: 31 Oct 2014.
17. Cylus J, Mladovsky P, McKee M. Is there a statistical relationship between economic crises and changes in government health expenditure growth?: an analysis of twenty-four European countries. *Health Services Research.* 2012;**47**(6):2204-24.
18. DeNavas-Walt C, Proctor BD, Smith JC. Income, poverty, and health insurance coverage in the United States: 2011. United States Census Bureau, Department of Commerce: Washington, DC. 2012.
19. Ekman B. Community-based health insurance in low-income countries: a systematic review of the evidence. *Health Policy and Planning.* 2004;**19**(5):249-70.

20. Emanuel E, Tanden N, Altman S, Armstrong Sc, Berwick D, *et al.* A systemic approach to containing health care spending. *The New England Journal of Medicine*. 2012;**367**(10):949-54.
21. Fung V, Graetz I, Galbraith A, Hamity C, Huang J, *et al.* Financial barriers to care among low-income children with asthma - health care reform implications. *JAMA Pediatrics*. 2014;**168**(7):649-56.
22. Goldman DP, Joyce GF, Escarce JJ, Pace JE, Solomon MD, *et al.* Pharmacy benefits and the use of drugs by the chronically ill. *JAMA*. 2004;**291**(19):2344-50.
23. Goldman DP, Joyce GF, Zheng Y. Prescription drug cost sharing: associations with medication and medical utilization and spending and health. *JAMA*. 2007;**298**(1):61-9.
24. Hall J, Lourenco RDA, Viney R. Carrots and sticks – the fall and fall of private health insurance in Australia. *Health Economics*. 1999;**8**:653-60.
25. Himmelstein DU, Thorne D, Warren E, Woolhandler S. Medical bankruptcy in the United States, 2007: Results of a National Study. *The American Journal of Medicine*. 2009;**122**(8):741-6.
26. Hsiao WC. Abnormal economics in the health sector. *Health Policy*. 1995;**32**(1-3):125-39.
27. Hsiao WC. 'Marketization' – the illusory magic pill. *Health Economics*. 1996;**3**(6):351-7.
28. Jost TS. *Health Care at Risk: A Critique of the Consumer-Driven Movement*. Duke University Press: New York. 2007. 288 p.
29. Lagarde M, Palmer N. The impact of user fees on access to health services in low- and middle-income countries (Review). *Cochrane Database of Systematic Reviews*. 2011;**13**(4):CD009094.
30. Leu RE, Rutten FFH, Brouwer W, Matter P, Rüttschi C. The Swiss and Dutch health insurance systems: universal coverage and regulated competitive insurance markets. 2009 The Commonwealth Fund. 29 p.
31. Logie DE, Rowson M, Ndagije F. Innovations in Rwanda's health system: looking to the future. *Lancet*. 2008;**372**:256-61.
32. Lu C, Chin B, Lewandowski JL, Basinga P, Hirschhorn LR, Hill K, *et al.* Towards universal health coverage: an evaluation of Rwanda *Mutuelles* in its first eight years. *PLOS One*. 2012;**7**(6):e29282.
33. Maciejewski ML, Wansink D, Lindquist JH, Parker JC, Farley JF. Value-based insurance design program in North Carolina increased medication adherence but was not cost neutral. *Health Affairs*. 2014;**33**(2):300-8.
34. Maynard A, Dixon A. Chapter five. Private health insurance and medical savings accounts: theory and experience. In E. Mossialos, A. Dixon, J. Figueras and J. Kutzin (eds) *Funding health care: options for Europe*. Open University Press: Buckingham. 2002.
35. McKee M, Busse R. Medical savings accounts: Singapore's non-solution to healthcare costs. *BMJ*. 2013;**347**:f4797.

36. Ministry of Health of the Republic of Rwanda. Rwanda national health insurance policy. 2010; Kingali, Rwanda. 32 pages.
37. Mossialos E, Thomson S. Voluntary health insurance in the European Union: a critical assessment. *International Journal of Health Services*. 2002;**32**(1):19-88.
38. Newhouse JP, Insurance Experiment Group. *Free for all? Lessons from the RAND Health Insurance Experiment*. Cambridge: Harvard University Press. 1993.
39. Nichols L, Prescott N, Phua K (1997). Medical savings accounts for developing countries. In G. Shieber (ed) *Innovations in Health Care Financing*. World Bank: Washington, D.C.
40. Nolte E, McKee M. Measuring the health of nations: analysis of mortality amenable to health care. *British Medical Journal*. 2003;**327**(7424):1129-32.
41. Nolte E, McKee M. Measuring the health of nations: updating an earlier analysis. *Health Affairs*. 2008;**27**(1):58-71.
42. Organisation for Economic Co-operation and Development (2014). OECD Health Data: Eco-Santé OCDE 2014. Available from www.oecd.org.
43. Pauly MV. Overinsurance and public provision of insurance: the roles of moral hazard and adverse selection. *The Quarterly Journal of Economics*. 1974;**88**(1):44-62.
44. Pauly MV, Blavin FE, Meghan S. How private, voluntary health insurance can work in developing countries. *Health Affairs*. 2009;**28**(6):1778-87.
45. Pauly MV, Zweifel P, Scheffler RM, Preker AS, Bassett M. Private health insurance in developing countries. *Health Affairs*. 2006;**25**(2):369-79.
46. Powell-Jackson T, Basu S, Balabanova D, McKee M, Stuckler D. Democracy and growth in divided societies: A health-inequality trap? *Soc Sci Med*. 2011;**73**(1):33-41.
47. Reeves A, Gourtsoyannis Y, Basu S, McCoy D, McKee M, *et al*. Financing universal health coverage: effects of alternative tax structures on public health systems in 89 low- and middle-income countries (forthcoming).
48. Reeves A, Basu S, McKee M, Stuckler D. The political economy of austerity and healthcare: Cross-national analysis of expenditure changes in 27 European nations 1995–2011. *Health Policy*. 2014;**115**:1-8.
49. Reinhardt UE. The Swiss Health System: Regulated Competition Without Managed Care. *JAMA*. 2004;**292**(10):1227-31.
50. Reinhardt UE. The pricing of US hospital services: chaos behind a veil of secrecy. *Health Affairs*. 2006;**25**(1):57-69.
51. Reynolds L, McKee M. Opening the oyster: the 2010-2011 NHS reforms in England. *Clin Med*. 2012;**12**:128–32.
52. Sapelli C. Risk segmentation and equity in the Chilean mandatory health insurance system. *Social Science & Medicine*. 2004;**58**:259-65.
53. Schoen C, Osborn R, Squires D, Doty MM. Access, affordability, and insurance complexity are often worse in the United States compared to ten other countries. *Health Affairs*. 2013;**32**(12):2205-15.

54. Stuckler D, Basu S. *The body economic: why austerity kills*. 2013; Basic Books: New York. 240 p.
55. Thomson S, Busse R, Crivelli L, van de Ven W, Van de Voorde C. Statutory health insurance competition in Europe: A four-country comparison. *Health Policy*. 2013a;**109**:209-25.
56. Thomsons S, Foubister T, Mossialos E. Can user charges make health care more efficient? *British Medical Journal*. 2010;**341**:c3759.
57. Thomson S, Mossialos E. What are the equity, efficiency, cost containment and choice implications of private health-care funding in western Europe? *WHO Regional Office for Europe, Health Evidence Network (HEN) synthesis report*. 2004.
58. Thomson S, Schang L, Chernew ME. Value-based cost sharing in the United States and elsewhere can increase patients' use of high-value goods and services. *Health Affairs*. 2013b;**32**(4):704-12.
59. Trivedi AN, Rakowski W, Ayanian JZ. Effect of cost sharing on screening mammography in Medicare health plans. *The New England Journal of Medicine*. 2008;**358**:375-83.
60. van de Ven WPMM, Beck K, Buchner F, Schokkaert E, Schut FT, *et al*. Preconditions for efficiency and affordability in competitive healthcare markets: Are they fulfilled in Belgium, Germany, Israel, the Netherlands and Switzerland? *Health Policy*. 2013;**109**:226-45.
61. Woolhandler S, Campbell T, Himmelstein DU. Costs of health care administration in the United States and Canada. *The New England Journal of Medicine*. 2003;**349**:768-75.
62. World Bank. Open Data. 2014. Available from: data.worldbank.org. Accessed: 31 Oct 2014.
63. Wouters OJ, Cylus J, Yang W, Thomson S, McKee M. Medical savings accounts: assessing their impact on efficiency, equity and financial protection in health care. *Health Economics, Policy and Law* (forthcoming).