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AND WELFARE

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Competition in the Health Care Sector and Welfare*

Abstract

All recent proposals of reform of the health care systems rely on competition to promote efficiency. The rationale is that, if controlled (or 'managed') to avoid undesirable impacts on equity, competition is more effective in promoting welfare than public provision. Evidence appears to support that, at least in the short run, costs decrease and quality (measured by standard variables such as waiting time and length of visits) is increased. However, no effect was found on the long run growth rate of health care costs. In particular, since this rate depends heavily on technology, it has no impact on the rationalisation of the productive process.

Since long run increase in costs and prices is accompanied by changes in preferences and income, it is easily argued that a more intensive use of technology corresponds to a welfare maximisation strategy if it is proved (as it seems to be the case) that consumers have been paying for it out of their pockets (the willingness-to-pay approach). It follows that any restriction on incentives will decrease welfare, specially if they influence negatively the adoption of technology.

In the paper this approach will be discussed in a first-best framework. In particular, it will be argued that, besides assuming consumer's sovereignty, it oversimplifies the role of technology in the patient-provider relationship. The main assumption is that the use of technology is an important factor in differentiating providers, which is necessary because of the existence of asymmetric information and, consequently, acts as a means of diminishing adverse selection of doctors. If this is accepted, then the degree of effectiveness of technology becomes secondary as a criterion for its use, thus explaining much of the findings in the literature on the subject. Moreover, it implies that, rather than increasing welfare, competition may decrease it, insofar as the growth in costs is not compensated by an increase in effectiveness. Last, it stands as an important case for economic evaluation of health care technologies in general.

Key Words: Competition; Adverse selection; Health care technology; Welfare.

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1. Introduction

All recent proposals of reform of the health care systems (e.g., Enthoven, 1988; Le Grand, 1991) rely on competition to promote efficiency. Although somewhat differently (reflecting mainly the institutional characteristics of the health care system each proposal implicitly refers to) all of them advocate some form of controlled (or managed) competition as being the best way to decrease the growth rate of costs and to improve quality of care, without impairing equity (which is generally understood as avoidance of "cream skimming"¹).

The argument rests on the conviction that market incentives are more effective than administrative controls in promoting the efficient use of resources in the health care sector and, consequently, in containing costs. At the same time, it is defended that decentralization provides freedom of choice which decreases waiting time for consultations and increases the length of visits. This would allow for a better relationship between doctors and patients which would improve outcomes.

Also, it is defended that allocations steered by managed competition of insurance plans and of organizations delivering integrated care (e.g., health maintenance organizations, specially those based on pre-paid group practice) would be superior to those resulting from the "free" market since they would avoid unnecessary care thereby decreasing costs.

Existing evidence for the USA appears to support this. In fact, Mark and Dougherty (1994) point out that "[p]lausible conservative estimates of savings from HMOs span a range from 3% to 15% of current spending in fee-for-service plans" and that "...insurance plan competition might decrease the growth rate of health care expenditures by 1% or 2%". Also, Newhouse (1992), reviewing the literature, found out that personal health care

¹ This issue is somewhat confused in the literature. In fact, to avoid "cream skimming" is not an equity objective; instead, it is an efficiency one since "cream skimming" is primarily a consequence of the strategy of financing agencies to impede adverse selection of the insured.

expenditures of enrollees in HMOs are inferior to average costs. Besides, Olsen (1993) reached the conclusion that health levels of the latter are not inferior to the average, after standardization to take into account risk factors.

However, these results seem to hold only in the short run. In fact, Newhouse (op. cit.) states that data show that the growth rate of costs borne by enrollees in HMOs in the long run is equal to the one of average personal health care expenditures. On the other hand, Mark and Dougherty (1994) found that there was too little evidence on the long-term effect of managed competition over the growth of health care expenditures².

Consequently, given that technology is pointed out as the main cause of the rise in costs (Schwartz, 1987; and Fuchs, 1994, namely) it is plausible to conclude, as Newhouse (op. cit.) implicitly does, that managed competition is no solution to the control of technology use. In particular, it may be said that peer-review of technology, as it is advocated by Enthoven (1988) and practiced by decision makers in HMOs and hospitals in the United States (Luce and Brown, 1995), is inadequate to deal with this issue.

The analysis of the situation in the USA is extremely useful for the design of reforms of health systems based mainly on public provision, such as the Portuguese. In fact, steering competition may induce the provision of higher quality health care (however measured), but at much higher costs than expected. Three factors contribute to this.

First, existing literature refer that competition leads to an increase in administrative costs (the so-called loading) associated with discrimination of risks, which is necessary, namely, to avoid "cream skimming". Secondly, competition induces a rise in prices due to the "increasing monopoly" effect (Pauly and Satterthwaite, 1981). Finally, competition causes a more intensive use of technology since, being technology (in a broad sense) an instrument

² Olsen (1993) argues that HMOs decrease personal expenditures in the long run. However, data used appears not to be suited to prove this since the observation period is too short (three years) to base long-term predictions.

that suppliers use to "signal" their ability to fulfill patients' expectations, increase in the intensity of its use is demanded by competition itself.

In this paper our main objective will be to explain this last issue. If the assumptions drawn are correct, it follows that managed competition is much less a magic solution to the problems faced by health systems based on public provision of care than it is generally thought. In particular, it is possible to deduce that, even accounting for improvements in the quality of care (however measured) and supposing that "cream skimming" is avoided at no administrative costs, competition will lead to a sharp increase in costs in the long run due to the spread of technology. But, first, it will be analysed how health care expenditures evolved in the last two decades. In point 3 we'll present the reasons usually put forward to explain this evolution and discuss the role of technology. Finally, some consequences for the design of proposals of reform will be drawn.

The discussion will be only methodological. Conditions for second-best equilibrium will be analysed in another paper.

2. The evolution of long-term health care costs

In the last two decades, real total health care expenditures have risen more rapidly than real GDP in almost all EU countries and in the USA, as can be seen from Figures 1 and 2³. In fact, the average annual growth rates (AAGR) of expenditures were greater than the growth rate of GDP for all countries in the seventies while, in the 80s, it was inferior in Denmark, Germany, Ireland (in which case the AAGR of expenditures was negative due probably to strict budget caps⁴), Austria, the Netherlands, Sweden and the UK.

However, if the shares of total health expenditure in GDP are compared, it can be seen from Tables 1 and 2 that only in Denmark, Germany, Ireland and Sweden has this ratio

³ All tables are presented in the Appendix.

decreased in the last decade. This means that in the other countries where real expenditures grew more slowly than GDP, the rise in relative prices of health care more than compensated the fall in quantities purchased.

It appears that a major part of the responsibility for this evolution can be attributed to a decrease in the share of public expenditure on health in GDP (see Tables 1 and 2). In fact, almost all countries where the ratio of public financing to GDP fell were the ones that showed an AAGR of expenditures smaller than the AAGR of GDP and/or a decline in the share of expenditure in GDP, the only exception being Portugal⁵.

So, although expenditures were relatively controlled in the 80s (their average annual growth rates were substantially smaller than in the previous decade), the situation in the great majority of countries is far from the desirable one. In spite of all cost containment policies put forward by governments, ratios of public expenditure and of total expenditure in health to GDP are considered still high, specially if the opportunity cost of expenditures is accounted for.

In fact, comparing the gains in the reduction of premature mortality in the 70s and in the 80s in most countries, it can be concluded that expenditure has no direct relation to better health. Also, from a higher ratio of total expenditure or of public expenditure to GDP does not follow a smaller amount of life years lost due to premature mortality, as can be deduced from the tables.

Moreover, the price index of medical care has increased more rapidly in the 80s than in the 70s (OECD Health Systems, 1993). This indicates that, in the majority of countries, restrictions on the quantity of health care purchased (where they occurred) were at least in

⁴ See Abel-Smith and Mossialos (1994)

⁵ One possible explanation for this is that public expenditure on health in Portugal has been underestimated in recent years. One indicator is the fact that the public debt to suppliers (not accounted for in the budget) was equal to about one quarter of the health budget in 1993. These are only guess-estimates since the government did not reveal the true amount of the debt.

part compensated by a rise in prices. This may well raise the fear that additional rationing will decrease the amount and/or quality of care below an acceptable minimum.

Managed competition (and "quasi-markets") proposals try to cope with this issue. The rationale is that choice is the best criteria to select the "right" amount of care and its quality. Due to market failures and, specially, to foreseeable adverse effects upon equity, competition must be regulated. It is argued that, if this is done appropriately, expenditures will correspond to a social optimum since they are determined by rational, welfare maximizing individuals. This general approach was also adopted by Newhouse (1992). We discuss it next.

3. Health care costs and technology

There are not many articles where the evolution of health care costs in the long run is discussed. Main references are Weisbrod (1991) and Newhouse (op. cit.). In particular the latter reviewed the evolution of real health care expenditure in the USA between 1950 and 1990 and discussed the main factors that explain its growth.

The approach was the classical one. Having verified that medical expenditures increased more than five fold in this period, Newhouse analyses the main factors usually accepted as contributing to this growth, assuming no technological change. These were ageing of the population, increase in insurance coverage, rise in disposable income, supplier-induced demand and productivity (the so-called Baumol effect), being the unexplained variation attributable to technology.

Although it is very difficult to separately analyse the impact of technology on costs or to rigorously assess the responsibility of each of these factors in the rise of expenditures, Newhouse convincingly argues that, at most, they account for half of this rise, whereas technological change is responsible for a similar proportion.

However, Newhouse defends that the welfare loss induced by additional spending in technology is relatively small. He presents two reasons.

First, it is stated that the real rate of increase in costs is similar across countries, irrespective of decisions being centralized or not (Newhouse, p.15). So, direct control of the health system does not change the pattern of technology use. Even if we accept this (which is not really true), it is difficult to explain the "outlier" position of the USA in the cross section regression of health care expenditure on GDP, specially in 1990 (OECD Health Systems, 1993).

Moreover, the fact that most decisions regarding expenditures are centralized in some systems does not mean that there is a regular practice of technology assessment and, particularly, that recommendations from advisory boards are always followed by governments. One of the reasons for this is that recent research casts growing doubts on the effectiveness of existing technology.

Another reason is that advisory boards are composed almost entirely of doctors who take into account evidence on effectiveness alone and consider only short-term evidence. So, the cost issue and the long-term effects of the adoption of technologies are neglected⁶. This lays some suspicion on the adequacy of the recommendations since there is a strong possibility of benefits being over-evaluated and, even, of being overrun by eventual negative effects in the long run.

More important for our purpose is the fact that as technology use is assessed by peer-review, it is most probably biased, since providers depend on technology to compete in the market, as will be shown.

⁶ See McClellan (1995). He quotes the U.S. Office of Technology Assessment as stating that "... the cost-effectiveness of no class of medical technologies has been adequately evaluated" (p. 38).

The second reason put forward by Newhouse is the similarity in the long-term growth rates of HMOs costs and those of the overall medical sector. The argument is based on plain classical economic theory, the willingness to pay approach.

Since HMOs compete with traditional reimbursement insurance for consumers, they should offer cheaper care. They can do this by avoiding unnecessary procedures and rationalizing the delivery process, which they do. But if their costs increase at the same rate as those of overall care and since enrollees pay for it out of their pockets, they must find some utility in technology since, as Newhouse puts it, "... if many consumers felt that technology wasn't worth the price, it seems odd that we do not observe some firms trying to enter and offer at least some aspects of 1960s medicine at 1960s prices" (p.16).

There is strong criticism on applying standard economic approaches to the behavior of agents in the health care market. Arrow (1963) was the first author to rigorously point out the consequences for equilibrium of asymmetric information existing in this market. Although his main concern was with optimal insurance, inferences can be derived to the doctor/patient relationship⁷.

The rationale is that, being the patient ignorant as to the appropriate care that will maximise his utility (i.e., to be cured), he delegates (at least) part of his sovereignty to the doctor expecting that his expectations will be fulfilled. If the doctor acts rationally, he will try to reconcile his objectives (namely, to achieve a target income) with the objectives of the patient. He can do it through "hidden action" (or moral hazard) which main consequence will be that care prescribed can be greater than the strict necessary to cure the patient. This has been called in the health economics literature "supplier-induced demand"⁸.

Also, being ignorant, the patient doesn't know the specific ability of each doctor to cure him. He/she only has an idea of (or, putting it more rigorously, attributes a subjective probability

⁷ This approach follows the methodology set by Arrow (1986).

to⁹) the average capacity of suppliers to maximise his utility. This "hidden information" may lead to adverse selection of providers since, if patients make their choices based only on market signals (i.e., prices), the probability of visiting a low quality one (and of receiving inappropriate care) will increase. On the other hand, this will lead the more qualified doctors to leave the market since their prices will be higher reflecting the differences in productivity and the costs of professional training.

But what is more important to notice is that the risk of adverse selection rises with competition since increasing the number of providers will also increase the probability of getting poor quality care.

Certification of suppliers and contingent contracts are the policies generally advocated to diminish adverse selection. However, it is impossible to implement contingent contracts in the health care sector. As for certification of providers, growing competition calls for an increase in the diversification of certificates leading to specialization and sub-specialization of doctors¹⁰.

Looking more closely at this issue, specialization induces an upgrading of providers' skills and a form of technology. In fact, it can be seen as a way of increasing doctors' productivity. In this sense it is technology embodied in labor. At the same time it is a "sign" of the physician's ability to treat the patient and, consequently, a way of passing information to consumers.

Theoretically, this would increase welfare since information (or transaction) costs would decrease, countervailing (at least temporarily) the main cause of increasing monopoly. However, specialization is also a barrier to entry leading to the restriction of competition.

⁸ Note that it is irrelevant for the argument whether supplier-induced demand (SID) is empirically proved or not. Moral hazard in the doctor/patient relationship (and, consequently, SID) follows strictly from the acceptance of the behaviour assumptions on which economic theory is based.

⁹ See Akerloff (1970). The role of information (provided by relatives, friends, etc.) is to increase the probability of not choosing a "lemon", i.e., a product of less quality. In the health care sector this is confused with the quality of the doctor itself.

¹⁰ Fuchs (1994) points out that this is a major factor of cost increase in the USA.

Costs will grow with specialization not only because training of doctors is expensive but, also, because restriction of competition increases prices. The net loss in welfare must be assessed comparing the benefits from decreasing transaction costs with the loss resulting from these higher prices.

However, welfare loss will be, most probably, greater than this. In fact, most activities developed by specialists can be as well performed by general practitioners (in fact, they could be developed by lower rank health technicians). If this holds as it seems (e.g., Pauly, 1980), it means that the cost of specialization is not fully justified and, also, that the information costs saved are smaller, from the social point of view. Consequently, the loss in social welfare will be greater.

Our main point in this paper is that the same reasoning can be applied to most of (if not all) technology used in the medical profession, ranging from medicines to high-tech surgery. In fact, ability to deal with the latest technology will be the most powerful signal that providers can emit to consumers regarding their ability to cure them. If this holds, adoption of the latest technology will generate a process similar to an “arms race” resulting in a Nash-Cournot equilibrium to a prisoner’s dilemma problem¹¹.

At first sight this appears to be equivalent to Newhouse's position. However, it differs in two important issues.

First, effectiveness of a large part of medical technology is by no means established, not to speak of its cost-effectiveness¹². So, the patient (and, frequently, even the doctor) does not know if procedures will lead to an improvement in the outcome, let alone their price correspond to marginal benefits.

¹¹ I thank Pedro Pita Barros for this suggestion. This issue is a possible explanation for the regional homogeneity of medical procedures. This was found out in France by Pierre-Jean Lancry (personal communication).

¹² For a description of some ineffective medical practices see Eddy (1994).

Second, health technology is imposed by competition itself. Whether it is effective or not (provided there are no adverse effects for the patients, which is not guaranteed) is a secondary issue.

So, restrictions on technology use based on rigorous cost-effectiveness assessment will not decrease welfare but will increase it. However, it must be pointed out that economic evaluation of health care technologies is still at its infancy, even in the pharmaceutical sector, where studies and methodological discussions increased rapidly in the last few years.

Moreover, economic evaluation studies are expensive and, consequently, their opportunity cost must be assessed. But the rapid growth of technology costs in the last decade with relatively poor gains in outcomes will, most probably, steer the production of these studies.

4. Conclusion. Some implications for the design of health systems' reforms

Acceptance of the fact that the spread of technology is a direct consequence of competition and that, probably, some of it is ineffective does not mean that provision of health care should be based on monopolies (either private or public). However, it certainly implies that competition must be regulated much more tightly than what is proposed in the main models appointed as references for the reform of health systems.

The difficult issue is that, if technology use is strictly controlled by public authorities, the production function of suppliers will be eventually standardised. This would limit the gains in productivity which are the main expected social benefits from competition. However, there are two ways (eventually complementary) of trying to solve the problem.

One is by dividing health care into basic and non-basic treatments. The first would be public provided and financed and should obey to pre-defined standards of delivery, taking into account (forcefully) cost-effectiveness assessments of procedures. The second would be mostly private and could be supplied with no restrictions.

Main objections to this two-tier system are that classification of care into basic and non-basic is always somewhat arbitrary and, also, that it may have negative impact upon equity.

The other possible way out of the problem is to convince providers (either doctors or hospitals) that rationalization of technology use is, contrary to what it may seem, in their best interest, not only for budgetary reasons but as a condition for suppliers to maximise their utility.

In fact, it is generally agreed that providers supply (and consumers demand) treatments and not merely isolated care¹³. So, prices refer to a bundle of care. Being technology the most important factor in the rise of prices and since the elasticity of demand is negative, it may happen that the increase in prices will be slower than the rise of technology costs implying a reduction in physicians' incomes. This, if correctly understood, may create a basis for a consensus among agents involved in the health care sector regarding the rationalization of technology use.

But whichever the solution adopted, it remains the fact that only sound economic evaluation of health technologies can unambiguously prove if newer procedures contribute positively to social welfare. This implies the regulation of providers' production function (at least for basic care) and the incentive of forms of competition that do not imply the intensification of technology use. Research on this issue is urgently required.

¹³ See Pauly (1980) and McGuire, Henderson and Mooney (1988) among others.

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