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Background Note #2 For Innovations Workshop

Victor Fuchs

Health care innovations can be categorized by their effects on quality of care, cost of care, and value. I define **quality** broadly to include not only health outcomes, but all other dimensions of care that are valued by patients and their families. **Cost** refers to the value to society of the resources used to provide care. **Value** refers to the change in quality attributable to the innovation relative to the change in cost.

Some innovations are unambiguously desirable from a social point of view. For example, types A and B in Table 1 meet that criterion. Everyone potentially benefits when there is an increase in quality with no increase in cost. Everyone also benefits when there is a decrease in cost with no decrease in quality. Most industries have pursued both type A and type B innovations. In health care, there has been a marked emphasis on type A rather than type B.

The value of other types of innovation is more ambiguous. Consider, for instance, an innovation that leads to increases in quality and cost (type C). The effect on value may be an increase for some individuals because the gain in quality more than justifies the higher costs, but the reverse may be true for other individuals. The effect for society as a whole could be positive or negative. Those who laud the role of innovations in health care emphasize the importance of gains in quality from type C innovations and minimize or ignore the importance of the increase in cost. There are even some who take the position that any increase in quality is desirable regardless of its impact on cost. From a social point of view, this can't be correct.

The social value of decreasing costs is also ambiguous when it is accompanied by a decrease in quality (type D innovations). They may increase value for some individuals because the decrease in cost outweighs the decrease in quality, but for other individuals the reverse is true. Type D innovations do not play any significant role in health care (unlike many other industries) because an overt decrease in quality, regardless of how much it reduces cost, is usually not admitted or permitted.

Types A and B benefit all members of society, but not necessarily to the same extent. Whether types C and D increase or decrease value depends on the individual's income, health, and other characteristics. Other things being equal, the value of an innovation across individuals varies with income. In general, for innovations that increase quality, the value is greater the higher the income. For innovations that decrease cost, the value is greater the lower the income. In economics jargon, these relationships reflect the diminishing marginal utility of income. In plain language, a decrease or an increase of, say \$100, means a lot more to a poor person than to a rich one. Consider, for example, a type C innovation, which increases quality and cost (probably the most common type of health care innovation). Such an innovation might have negative value for someone with low income (the increase in cost outweighs the value of the increase in quality), but have a positive value for a high income individual. Moreover, the higher the income, the greater the value because the increase in cost becomes increasingly less important.

In recent decades, the development and diffusion of health care innovations has been in a (mostly) cost-unconscious environment. The result is a profusion of innovations that increase quality – regardless of effects on cost and value – and a neglect of innovations that decrease cost.

Other industries are different. Consider, for instance, the most important and successful innovation in commercial aviation in recent decades -- Southwest Airlines. At a time when most other airlines have been on the brink of or in bankruptcy, Southwest has flourished, primarily because they found ways to lower cost.

If comprehensive reform puts health care in a more cost-conscious environment, and I think it will, this is bound to have effects on innovative activity. I hope that those with extensive knowledge of the development and diffusion of innovations will discuss these effects at the workshop.

Table 1
Health Care Innovations Categorized
By Their Effects on Quality, Cost, and Value

Innovation Type	Effect on Quality	Effect on Cost	Effect on Value
A	Increase	No change	Increase
B	No change	Decrease	Increase
C	Increase	Increase	Increase or Decrease
D	Decrease	Decrease	Increase or Decrease