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Living will: Ruminations of an economist☆

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ABSTRACT

The typical living will is an awfully imperfect instrument for doing what it is supposed to do. This paper is one economist's attempt to make sense of living will. The foray takes one deep into the domain of mainstream economics. The paper concludes that, despite its shortcomings, living will makes good economic sense and its future is bright.

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1. Introduction

A living will is a set of written instructions on how one's life is *not* to be extended. There is probably nothing more antithetical to economic theory, other than suicide. Suicide at least may be brushed aside as an irrational behavior, beyond the realm of economic theory.[1] A living will, in contrast, is a decision made by a presumably rational person, and a rational person in mainstream economics wants to live a longer, not shorter life. Not surprisingly, therefore, economists have had little to say about living wills.[2] This paper is my attempt to say something.

Naturally I began with the question: Why does anyone *not* wish to live a longer life? I was immediately stymied by the long-standing assumption of economics that a longer life is a better life.[3] Yet it hardly seems necessary to cite academic research to show that *not* all people all the time want to live longer. The popularity of living wills speaks to that eloquently. The long-standing assumption had to go.

With the path cleared, I proceeded to explain why one's life, if left to others to decide, might be prolonged beyond the point of one's maximum happiness. To do that I realized that I would have to explain how the medical care system deals with dying and death and why it does not necessarily serve the interest of the patient. The following explanation I came up with is the simplest. When an old person is dying, whether at a hospital or at a nursing home, it is highly likely that physicians and nurses are present.[4] They determine how much longer the patient will live. They are not required to do whatever the patient wishes. They are not compelled to maximize the hospital's profit. Rather, they come together to preserve a life. That does not mean the patient's life would be prolonged to the biological maximum. Their coordination is far from perfect, thus limiting what they can do as a team. Further, it takes effort on their part to preserve a life.

Clearly, then, I needed a theory of team. The following theory I eventually settled for is the simplest also. Suppose that a physician and a nurse are trying to save the dying patient. The physician determines how much effort to make by taking as given how much effort the nurse is making, and vice versa. Thus they make decisions by reaction rather than by cooperation. Their decisions collectively determine what would happen to the dying patient.

Whatever their collective decision is, a living will is simply the patient's vote against it. A living will is form of intervention, in hope of a better outcome. However, a patient's capacity for developing a living will is severely limited. There are at least two reasons. First, a

☆ I am grateful to an anonymous reviewer for thoughtful comments.
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[1] See, however, Yang and Lester (2006) for a review of the literature on "rational-suicide."

[2] A living will is commonly coupled with an appointed agent who will serve as one's advocate. Together, they form an advanced directive. At the end of the paper I explain why it makes economic sense to have both a living will and an agent.

[3] See Schelling (1984a,b) for famously original thoughts on this assumption.

[4] Old persons in general are more likely to die at hospitals (Lynn and Adamson, 2003, pp. 1–2). Old persons with dementia are more likely to die at nursing homes (Mitchell et al., 2005).

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patient's knowledge of the medical system is likely terribly imperfect. He is not able to predict exactly what the physicians and the nurses will do to him and what the consequences of their actions are. A good prediction as such would require good knowledge of the organization of medicine in a hospital as well as the science of medicine itself. The average patient does not know much about either. Second, the typical template for a living will – downloadable from the Internet – is a crude instrument. It falls far short of being a complete contract. It does not specify exhaustively how much and what kind of technology should be applied, nor in any detail how it is to be combined with other factors like nursing services. Instead, it consists of a set of multiple choices of medical procedures to be excluded, such as cardiopulmonary resuscitation, mechanical breathing, intravenous feeding, antibiotics, and blood transfusion. It says little else. One reason for this emphasis on technology is that technology is easier to specify than labor. People know exactly what a "ventilator" does, but not exactly what a nurse does. The typical living will is an incomplete contract.

Critics of living will are bothered by the possibility that it results in technology being withheld prematurely. I wondered about the opposite possibility: Can one end up living longer (i.e., suffering more) with a living will than without it? I thought of one such scenario, and I will explain it in the paper. Here is a sketch. Suppose a patient believes that so much technology would be used to prolong his life that he would suffer more than he prefers. So he designs a living will to limit the amount of technology. Suppose that the patient subsequently falls into coma and the nurse, in response to the withholding of technology pursuant to the living will, increases effort. The extra effort may be such as to completely offset the effect of withholding technology. This is an example of the kind of possibilities that an economist tends to think about first.

In the next three sections I will elaborate my thoughts above, somewhat more formally, while still striving to remain intuitive. In Section 2, I describe the extension of life as a matter of production and organization. In Section 3, I define a living will in that framework. In Section 4, I show the paradox of a nearly perfect living will backfiring on the patient.

In the final section, I place living will in the broader context of the economic theory of governance. Many implications then become evident. The most encouraging is that, despite its shortcomings, living will has a secure future. The demand for self-determination of dying continues to increase as the population ages. Yet social and market institutions that can replace living wills have been slow to emerge.

2. Life extension: production and organization

Think of the extension of life as a production process, using physicians and nurses. For simplicity, view physicians as embodying mostly technology, and nurses as mostly labor. Life, therefore, can be extended with efforts by physicians or nurses or both. Also we assume that physician and nurse are substitutable, though not perfectly. This is a standard assumption in production theory.[5]

An important question then is how physicians and nurses determine how they join efforts in preserving a life. The answer will determine how long the patient's life is extended. One view, representing the standard production theory, is that their efforts are chosen by the hospital to maximize profit. This assumes that the patient (or the patient's insurance policy) pays the hospital in some kind of proportion to the extent to which the patient's life is prolonged and that the hospital, in turn, pays physicians and nurses in

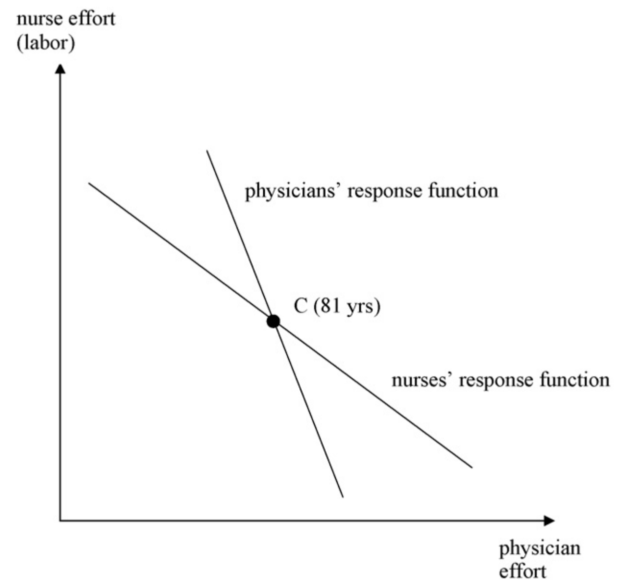

Fig. 1. A model of a team of medical staff.

accordance with the levels of effort they make. In this view, physicians and nurses have no discretion about how they save a life; they just do what the hospital tells them to do. If the hospital decides that X amount of physician effort combined with Y amount of nurse effort maximizes profit, that is what will be done. I do not think this is a particularly plausible way of explaining how physicians and nurses work.

Another view, more plausible in my opinion, is that physicians and nurses regard every life as sacrosanct and they want to preserve it regardless of profit to the hospital. The only thing that holds them back from going all the way is effort, which, like the rest of us, they do not like to make. Of course we need to assume that the hospital still derives revenue from saving the patient's life. Far from going broke, the hospital makes profit by delegating decisions to medical staff, even if the profit is not the maximum that it can be.

The next question I ask is how physicians and nurses work together. One could imagine that they are fully cooperative: They would sit down and work on a master plan: first, how long to extend a patient's life and, second, how to do it. However, there is little evidence that they actually work with each in this manner. The literature suggests, rather, that physicians and nurses behave fairly independently of each other. Hofling et al. (1966) and Chambliss (1996) and numerous case studies suggest that physicians and nurses in general hospitals are only weakly bonded, their encounters brief and their communications imperfect. Contrary to conventional wisdom, nurses make critical diagnostic decisions independently of physicians, exercising a large degree of discretion (Jacobson et al., 1998/1999).

A simple model of interaction then comes to mind. Assume that each will observe the level of effort of the other, take it as given, and then choose own level of effort that provides the greatest utility. When physicians and nurses first come together, they will adjust to each other. In time, they will find compatible levels of effort, and these levels of effort determine what happens to the patient.[6]

Fig. 1 depicts one possible scenario. The downward-sloping lines are response functions, each showing how much effort one

[5] Jensen and Morrisey (1986) have shown that physicians and nurses are substitutes, and so are medical staff and hospital beds.

[6] This model of interaction would continue to make sense if "nurses" should be defined broadly to include health-care aids and family members who are the primary caregivers but do not completely identify with the wishes of the dying person.

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