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## Advance Directives and Medical Care at the End of Life

Many Americans have decided to prepare written instructions on their preferences for specific medical treatments in the event of a loss of mental or physical competence. This trend toward preparing “advance medical directives” has been debated extensively by physicians, philosophers, and social scientists.

One issue is whether these end-of-life instructions would reduce the substantial health care resources devoted to patients near death. In 1990, the 6.6 percent of Medicare recipients who died accounted for 22 percent of program expenditures, a pattern that has changed little over time.

Another issue is whether patient autonomy and overall well-being would be enhanced by the use of advance directives. Although society has reached a consensus that treatment decisions should reflect a patient's informed preferences, this ideal is often not implemented in practice. Traditionally, physicians have made such treatment decisions in consultation with a patient's family members. In addition, physicians may disregard a patient's earlier stated preferences, believing that terminal patients' preferences change as their illnesses progress.

In **Advance Directives and Medical Treatment at the End of Life** (NBER Working Paper No. 9955), NBER Research Associate **Daniel Kessler** and **Dr. Mark**

**McClellan** provide new evidence on the consequences of states' laws governing advance medical directives for treatment at the end of life. They use a randomly selected sample of elderly Medicare beneficiaries who died between 1985 and 1995 and estimate the effects of two types of laws: laws enhancing incentives for compliance by physicians and hospitals with advance directives; and laws requiring the appointment of a health care surrogate —

In particular, laws enhancing incentives for compliance with advance directives increase medical expenditures in the last month of life by \$335; laws requiring delegation increase expenditures in the last month of life by \$379. On a base of average expenditures in the last month of life of \$14,122 (1995), this amounts to a 2.4 and a 2.7 percent increase, respectively.

The authors also find that laws governing end-of-life care have dif-

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Laws dealing with advance directives and surrogates do not bring “any savings in medical expenditures at the end of life.”

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such as a family member or guardian — in the absence of an advance directive.

The authors report three key findings. First, laws enhancing incentives for compliance reduce the probability of dying in an acute care hospital by .76 percentage points. Second, laws requiring the appointment of a surrogate to decide on treatment change the mix of treatment in the last month of life, increasing the probability of receiving acute care in the last month of life by .98 percentage points and decreasing the probability of receiving non-acute care by 1.79 percentage points. Third, neither type of law brings any savings in medical expenditures at the end of life.

ferent effects on different types of patients. For example, among patients who died from cancer, laws enhancing compliance with advance directives reduced the long-run probability of dying in an acute care hospital by almost twice as much — 1.38 percentage points — as for the entire sample of decedents. This is consistent with laws having a larger causal effect for patients for whom end-of-life care is particularly important. In addition, laws enhancing compliance with advance directives have a greater impact on less-educated patients, but laws requiring delegation in the absence of an advance directive have a greater impact on more-educated patients.

The authors point out that their findings are consistent with previous

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clinical research on the effects of advance directives. Advance directives are not simply a means for refusing treatment, although this is the most common request. In addition, previous research has also suggested that surrogates systematically opt for more intensive treatment than patients would prefer.

The authors conclude with sev-

eral suggestions for further research. Unless patients receive too little acute and too much non-acute care at the end of life, laws requiring delegation do not improve the alignment of end-of-life treatment with patient preferences, particularly for more-educated patients. The authors hypothesize that this may be because educated patients also have educated

surrogates, who are better able to persuade medical care providers of the patient's perceived wishes. If this is the case, then programs to encourage surrogates to communicate better with their patients could enhance patient autonomy and conserve health care resources.

— David R. Francis

## The Economic Decline in Africa

While the rest of the world's economy grew at an annual rate of close to 2 percent from 1960 to 2002, growth performance in Africa has been dismal. From 1974 through the mid-1990s, growth was negative, reaching negative 1.5 percent in 1990-4. As a consequence, hundreds of millions of African citizens have become poor: one half of the African continent lives below the poverty line. In sub-Saharan Africa, per capita GDP is now less than it was in 1974, having declined over 11 percent. In 1970, one in ten poor citizens in the world lived in Africa; by 2000, the number was closer to one in two. That trend translates into 360 million poor Africans in 2000, compared to 140 million in 1975.

In **The Economic Tragedy of the XXth Century: Growth in Africa** (NBER Working Paper No. 9865), authors **Elsa Artadi** and **Xavier Sala-i-Martin** review both the deteriorating economic status of the African continent and the ways in which rich nations, as well as the African nations themselves, might help the poor nations of the continent.

Using the robust econometric determinants of economic growth in a cross-section of countries, the authors pinpoint the most important factors behind the tragedy. The first culprit has been the lack of investment. Over the past 40 years the investment rate in Africa has fallen. Since 1975 the investment rate has declined to 8.5 percent for

the whole continent, compared to investment rates for the average-performing OECD economy of between 20 and 25 percent, and for East-Asian economies of 30 per-

cent. Similarly, if Africa had no malaria over the past 40 years, its annual growth rate would have been 1.25 percentage points larger.

Citing the fact that massive aid

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“One half of the African continent lives below the poverty line. In sub-Saharan Africa, per capita GDP is now less than it was in 1974, having declined over 11 percent.”

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cent. Furthermore, most of the investment was skewed in the direction of the inefficient public sector. Recent reforms in Africa have raised the investment rate, but only slightly.

For the two major determinants of human capital, education and health, Africa fares equally poorly. In the 1960s, the overall primary school enrollment rate averaged 42 percent, compared to a nearly 100 percent rate in OECD or East Asian countries. If Africa had enrollment rates at OECD levels during the 1960s, its average 0.9 percent growth rate would have been a much healthier 2.37 percent and per capita incomes today would be two-and-a-half times larger than they actually are. Improved enrollment rates since 1960 mean that economic growth prospects are brighter now.

Life expectancy in Africa in 1960 was just above 40 years, with corresponding values for OECD countries and East Asia of 67 and 62, respectively. If Africa had a life expectancy similar to the OECD, its annual growth rate would have been 2.07 percentage points larger.

programs have not helped much, the authors suggest that new initiatives may be needed. For example, more research could be focused on the continent's devastating health problems. Africans themselves have neither the resources nor the expertise to discover vaccines that prevent AIDS or malaria. Yet rich countries have little incentive to invest in these lines of research because the discoveries will help people with little ability to buy the products. The authors believe that if international aid financed by bilateral donors and multilateral institutions were redirected towards these health problems, then the situation in Africa might improve.

The economic situation in Africa also would improve if the military conflicts that have plagued the continent over the past half-century stopped. And, other important factors could contribute to African economic growth: these include the maturation of institutions that guarantee the rule of law and property rights; greater investments in education; the reduction of policy distortions that make invest-

ments excessively expensive; and the reduction of wasteful consumption expenditures.

Opening up the African economies to market forces of trade and technological diffusion is also important. While African governments could do a lot to open their economies, Europe, Japan, and the United States could also contribute by facilitating the access of African products to

their markets and by reducing subsidies to their agricultural products.

One of the key consequences of Africa's economic stagnation is that income inequality has increased, while it has decreased worldwide. This income inequality exists whether one looks at between-country or in-country measures. That is because richer nations on the continent have grown faster and because

rich citizens within each country have benefited more than poor citizens. A prime example is Nigeria where the incomes of the poorest 80 percent of the citizenry have declined, while the incomes of the richest have increased. That situation provides little incentive for the rich and powerful to make meaningful policy changes.

— Les Picker

## Flexible Exchange Rates Reduce Economic Volatility

The international financial crises of the 1990s — spanning Latin America, Asia, and Russia — prompted a rethinking of appropriate exchange rate regimes for rich and poor countries alike. In recent years, fixed-but-adjustable regimes have fallen out of favor, and many economists seem to prefer either hard pegs or floating regimes (the so called “two corners” debate). Supporters of hard pegs contend that such arrangements foster increased economic stability, while floating-regime advocates maintain that their option helps countries adjust more quickly to external shocks such as terms of trade shocks.

**In Flexible Exchange Rates as Shock Absorbers** (NBER Working Paper No. 9867), co-authors **Sebastian Edwards** and **Eduardo Levy Yeyati** examine the impact of terms-of-trade shocks on economies with different exchange rate regimes. While many studies have looked at the relationship between terms of trade and economic growth, the authors explain, few have studied how the choice of exchange rate system mediates that relationship.

Edwards and Levy Yeyati seek to redress that deficiency by posing three questions. First, do terms of trade shocks truly have less traumatic effects on GDP (gross domestic product) growth in countries with flexible exchange rate systems? Second, do negative and positive

shocks have an asymmetric effect on growth, and if so, is the difference contingent on the type of exchange rate regime? And third, do countries with flexible regimes grow faster than those with fixed regimes, or vice versa?

To answer these questions, the

Focusing on external shocks, Edwards and Levy Yeyati find that terms of trade shocks are exacerbated — in terms-of-the-impact on economic growth — in countries with more rigid exchange rate systems. For instance, in a country with a pegged exchange rate, a 10 percent

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“Under flexible exchange rates the effects of terms-of-trade shocks on growth are approximately one half that under pegged regimes.”

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authors use a sample of annual observations for 183 countries over the 1974-2000 period. Edwards and Levy Yeyati also construct four indexes of exchange rate regimes (pegged, hard, intermediate, and flexible) for each year in the sample, since they maintain that the official International Monetary Fund classification of such regimes across countries tends to be “misleading.”

Using a long-run GDP growth equation, the authors confirm past findings regarding the standard factors explaining differences in GDP growth per capita, such as initial GDP, education, openness, and government spending. After controlling for such factors, Edwards and Levy Yeyati find that economies with flexible exchange rates grow more rapidly than those with fixed regimes. The difference in the rate of growth of GDP per capita is substantial, on the order of 0.66 and 0.85 percentage points more per year for countries with flexible systems.

deterioration in the international terms of trade has been associated, on average, with a contemporaneous decline in GDP per capita growth of 8/10 of one percentage point, compared to a reduction of only 43/100 of one percentage point in countries with a flexible system. Therefore, the authors explain, “under flexible exchange rates the effects of terms-of-trade shocks on growth are approximately one half that under pegged regimes.” (These results hold even when the authors divide the sample into industrialized and emerging economies.)

Edwards and Levy also find evidence of an asymmetry in terms-of-trade shocks: output growth is more sensitive to negative than to positive shocks, and the sensitivity increases the more inflexible the exchange rate regime. The advantage of flexible systems resides in their ability to adjust more smoothly to negative shocks via depreciations in the real exchange rate. In pegged systems, a

depreciation of the real exchange rate requires a decline in nominal prices; if these are too rigid, negative terms-of-trade shocks will produce unemployment and a slower rate of economic growth.

The authors conclude by empha-

sizing the practical importance and policy relevance of their findings. Since the economic contraction associated with a terms-of-trade shock “nearly doubles” under a pegged system, “the choice of exchange rate regime has important

implications in terms of output volatility,” they explain. Moreover, pegged systems are also associated with “deeper and longer contractions” in economic performance.

— Carlos Lozada

## Does School Choice Increase School Quality?

In 1996-7, North Carolina had no charter schools. Three years later its 91 charter schools had enrolled 14,899 students, about 1 percent of the state’s total public school enrollment. In **Does School Choice Increase School Quality?** (NBER Working Paper No. 9683), **George Holmes**, **Jeff DeSimone**, and **Nicholas Rupp** use end of year test scores for grades three through eight from North Carolina’s statewide testing program to explore whether the competition provided by charter schools had any effect on the test scores in public schools run by school districts.

Most charter schools opened in metropolitan areas, and 90 percent of district schools were within 13

miles of a charter school. The authors find that charter school competition raised the composite test scores in district schools, even though the students leaving district schools for the charters tended to

For comparison, the authors point out that the North Carolina Governor’s Office proposed increasing achievement by reducing average class size by 1.8 students at a cost of \$26 million in 2002. The data sug-

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“Charter school competition raised the composite test scores in district schools, even though the students leaving district schools for the charters tended to have above average test scores.”

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have above average test scores. The gain was relatively large, roughly two to five times greater than the gain from decreasing the student-faculty ratio by 1, and more than “one-half of the average achievement gain of 1.7 percent in 1999-2000.”

gest that this would produce just one-third of the test score increase created by opening a neighboring charter school, a move that would not require any additional spending.

— Linda Gorman

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