"Uncertainty and the Welfare Economics of Medical Care"
Arrow (1963)
AMERICAN ECONOMIC REVIEW

Introduction
old style article
First Fundamental Welfare Theorem
If a competitive equilibrium exists at all, then it is "optimal" in the sense that there is no allocation of resources that can make all agents better off.

Necessary conditions
  existence of the market
  marketability of all relevant goods
  nonincreasing returns

Problem with health markets is with the nonmarketability of RISK

Cannot fully insure against the losses, since it is hard to define what those losses are.

Interesting point that a good amount of government redistribution is really done through insurance.

Requirements for a competitive general equilibrium not satisfied.
Institutions matter
Many dimensions of risk, and not all risk insurance markets exist.
Information is a commodity with IRS -> too little R&D done
Government and self regulation
Strong differences in altruism ⇔ interest in redistribution
Key features of health care markets

A. Demand
variable demand
health care only valued when ill
products cannot be tested before being purchased
Strong similarity to legal markets/ "Lawyerization"

B. Physicians
Need to trust the provider
Virtually no advertising or overt price competition
Advice is supposed to be divorced from self-interest
Considerable charity care/ care given without regard to personal gain
Social duty of physician as an expert
Exempt from certain antitrust rules
Predominance of nonprofit over for profit hospitals

<table>
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<tr>
<th>Year</th>
<th>For Profit</th>
<th>Nonprofit</th>
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<tr>
<td>1958</td>
<td>3%</td>
<td>30%</td>
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<td></td>
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<td>67% federal, state, local government</td>
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Agency issues, Physician-patient relationships

C. Product Uncertainty
Providers are better informed about the consequences and possibilities about treatment. (Doesn't matter that the technology of production is complex.)
Information plays a key role.

D. Supply Conditions
restrictions on entry
licensing
huge subsidy to education (private costs << total cost)
restricting at the same time that subsidizing. Mostly nonprofits.
gradual substitution away from MDs to other specialties

E. Pricing Policies
extensive price discrimination by income = “Charity care”
in 1960's, reluctance to have prepayment
enormous opposition to HMOs, managed care
Price fixing, little price competition, yet no antitrust enforcement
III Comparisons with Competitive marketed goods (redundant section)

Altruism/ redistribution motives important
Increasing returns
Restrictions on entry
Medical education plays a key role
Imperfect capital markets for borrowing for medical school
Great deal of anticompetitive conduct
Financial intermediaries
Ideal insurance markets – not achieved
  Moral Hazard
  Alternative provider payment not equivalent
  Third party control over payment
  Administrative costs
  Hints at adverse selection, but concepts not yet developed
  Pooling of unequal risks
  Problem of the uninsured
Treatment success is uncertain. As well as uncertainty of timing of illness.
Trust and delegation
Information problems abound.
Model in Appendix

no direct utility from health, only financial losses.
no moral hazard problem
focuses on deductibles versus cost sharing

$L = \text{loss} = \text{expense of being sick}$

$f(L) \text{ probability distribution of loss}$

$U(x)$
$U_x > 0$
$U_{xx} < 0 \Rightarrow \text{risk averse}$

$Y = x - L + r(L)$

$\pi = (1 + \delta) \ E\{r(L)\}$

$\delta = \text{insurance company loading factor, a proportion of dollars paid.}$

want to find the optimal $r(L)$ reimbursement function to consumer,
$r(L) \geq 0$ for all $L$.

$max \ E\{U(Y - \pi - L + r(L))\}$

$r(L) = \begin{cases} 
0 & \text{if } L < D \\
L-D & \text{if } L \geq D 
\end{cases}$

so second best utility function is

$U = \begin{cases} 
U(Y - \pi - L) & \text{for } L < D \\
U(Y - \pi - D) & \text{for } L \geq D 
\end{cases}$