

Demand for health and health care

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Health is an investment

- ▶ Buy commodities and transform them into better health (derived demand for health)
 - ▶ spend time improving health
 - ▶ medical care
- ▶ You gain from improving your health
 - ▶ it increases productivity (work more, harder = less sick leave, higher wage) – investment good (house)
 - ▶ it makes you feel better – consumption good (car)
- ▶ Health is built up slowly and health erodes over time (depreciates)

How to choose how much health

- ▶ What is the cost to 'install' a further unit of health?
 - ▶ commodities bought
 - ▶ time spent, evaluated at wage rate
- ▶ What is the benefit of a further unit of health?
 - ▶ value of time saved, evaluated at wage rate

Equilibrium

Yield of health investment should equal yield of financial asset (adjusting for the fact that health depreciates):

$$\frac{\text{wage X time saved by extra unit health capital}}{\text{cost of extra unit of health capital}} = r + \delta$$

r = mkt interest rate you could get on a financial investment

δ = natural depreciation in health capital (financial asset doesn't depreciate, but health does)

If health return $>$ financial return, invest in more health

If financial return $>$ health return, invest more in asset

Graphical representation

- ▶ x-axis: health capital
- ▶ y-axis: investment yield
- ▶ downward-sloping curve:
 - ▶ when low health, yield to investment is high (time saved is high, cost is low; dr visit has big payoff and dr only does easy/cheap stuff)
 - ▶ when very healthy, yield to investment is low (time saved is low, cost is high; dr visit doesn't do much and dr only has expensive tests left to try) → diminishing returns
- ▶ bowed in:
 - ▶ when low health, a decrease in health increases cost a lot because a lot of sick days involved
 - ▶ when very healthy, the same decrease in health doesn't have large effect on sick days → diminishing marginal returns
- ▶ optimal choice of health capital is when equal to $r + \delta$

Graphical representation

Question

Why doesn't everyone work super hard at getting healthy?

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Why doesn't everyone work super hard at getting healthy?

Reach a point where you are spending so much time at the gym that you are not working hard enough to benefit from your good health

Model Predictions

Big one:

Money is an important determinant of health

Because wage and r are in the equation

So, knowing how to get good health may not be enough; good health may be too expensive

How does market interest rate affect investment in health?

- ▶ Higher $r \rightarrow$ lower health capital
- ▶ More advantageous to invest in financial assets than in health.
- ▶ May be better to invest in financial assets and buy treatment later.
- ▶ Some evidence this is true: Ruhm finds that health is worse in economic booms.

How does market interest rate affect investment in health?

How does wage affect investment in health?

- ▶ Higher wage \rightarrow health payoff is higher
- ▶ Higher wage \rightarrow cost of health is higher (need time to install health)
- ▶ So, could go either way; but assume that change in cost is less than change in benefit because cost is composed of time and money (medical care)
- ▶ So, higher wage \rightarrow yield (payoff over cost) is higher (curve shifts up/out) \rightarrow choose higher health capital

How does wage affect investment in health?

How does age affect investment in health?

- ▶ Health depreciates faster when old
- ▶ At some point, it will get too costly to renew health for what you get
- ▶ Old \rightarrow less investment in health

How does age affect investment in health?

How does education affect investment in health?

- ▶ Grossman argues that education makes it easier to install health
- ▶ Education also makes you want more health because you understand how good it is for you
- ▶ Educated → more investment in health

How does education affect investment in health?