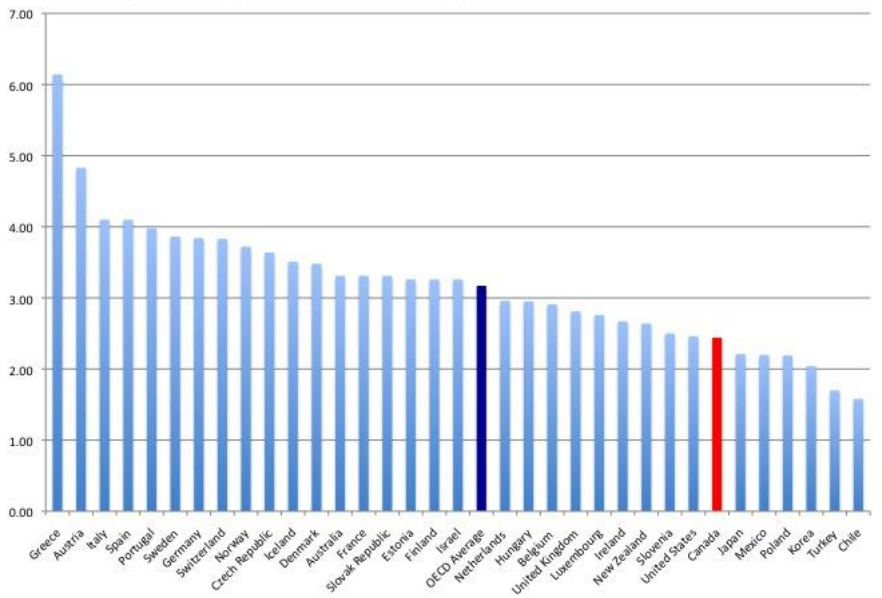
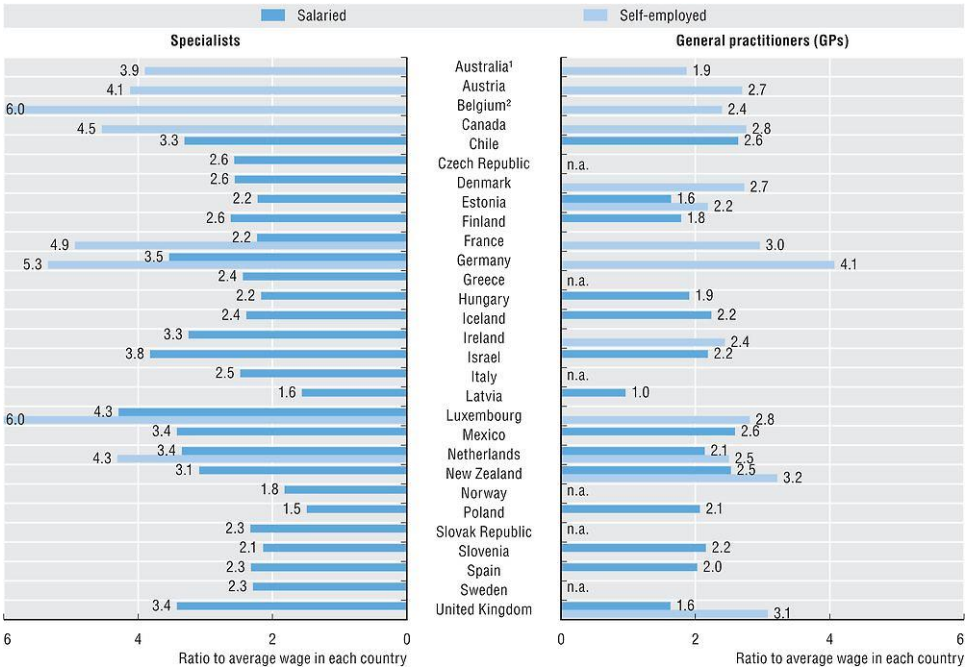
CHAPTER 5.2, 5.3 and 5.4
THE PHYSICIAN LABOR MARKET

Figure 1: Physicians per 1000 of Population, OECD Countries, 2011





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Labour market for physicians

- **New report reveals alarming shortage of country doctors** (The Guardian Sun 13 Oct 2019)
- **America's aging population is leading to a doctor shortage crisis** (CNBC SEP 6 2019)
- **Europe has a shortage of doctors** https://www.europeandatajournalism.eu/eng/News/Data-news/Europe-has-a-shortage-of-doctors
- **The main reasons for the lack of doctors in Europe.**
  - The shortage of doctors has many causes: a large number of doctors reaching retirement age, too few new doctors being trained, too many specialists as opposed to general practitioners...

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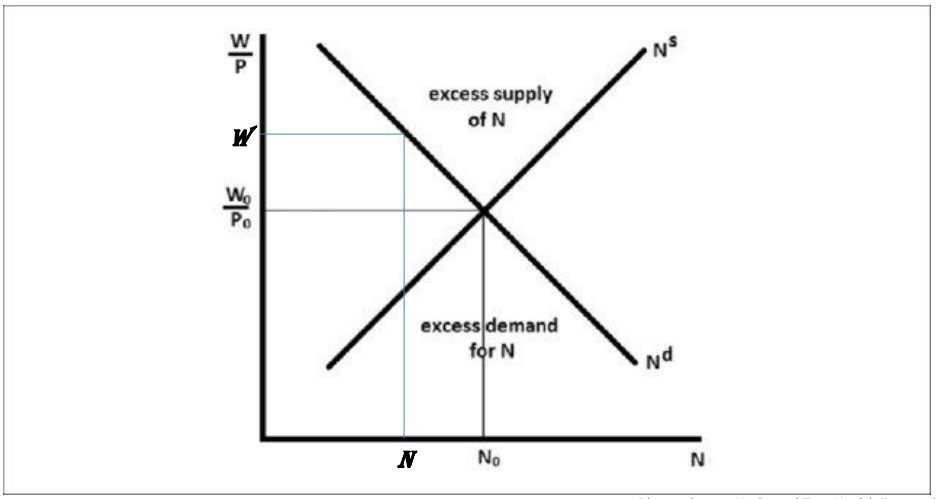
A non-competitive labour market



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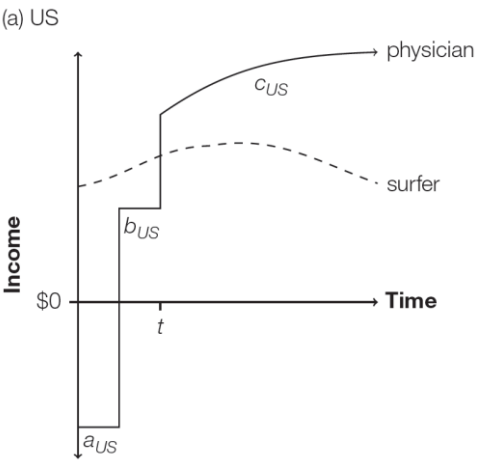
A non-competitive labour market

- Jobs are not all the same → $w_1 \neq w_2$
- Must consider lifetime costs and benefits

Returns to medical training

- Unlike most occupations, returns to medical training are very **back-loaded**
  - Medical school & residency expensive in direct costs and opportunity costs
- So those who choose being physician are patient enough to value future returns



Net present value

- **Net present value** is a way of calculating value of all future streams of income (from today's perspective)

$$\text{NPV} = \sum_{t=0}^{T} \delta^t I(t)$$

- **Discount factor** δ is a measure of how much less an individual values future income over present income
  - δ lies between 0 and 1; small if impatient and large if patient
  - Those with high δ have high NPV from being a physician
  - Those with low δ have low NPV (and maybe even negative NPV)

Discount factor

- Another way of expressing **discount factor** is:

$$\delta = 1/(1+r)$$

  - Where **r** is the **discount rate,** analogous to the market interest rate that would make a person with discount *factor* δ indifferent between saving for tomorrow and spending today
  - Ex: **δ = 0.90** corresponds with ***r = 0.11***
- Very patient have high discount factors δ and low discount rates r

Internal rate of return (IRR)

- Consider two possible career choices **P** and S with incomes paths I_p *and* I_c
- **Internal rate of return r*** is the discount rate which equalizes the NPV of both careers (or the difference between ***NPV(p) – NPV(s) = 0***)

$$\sum_{t=0}^{T} \frac{I_p(t) - I_s(t)}{(1+r^*)^t} = 0$$

- Someone with IRR of ***r**** values career **P** and career S exactly equally

Internal rate of return

- IRR in medicine is typically between 11% and 14%!
  - Significantly higher than market interest rate
  - This is true for dentists and lawyers too
  - IRR may be even higher for medical specialists like neurosurgeons and immunologists
- The fact that the IRR has stayed high is curious
  - Suggests that being a physician is highly lucrative
  - Why hasn't that attracted more physicians, which would have pushed the IRR back down to market levels?

Barriers to entry

Barriers to entry may explain the high IRR

- In 19th century, becoming a doctor was simple
  - Anyone could do it, no regulation about training
- American Medical Association (1847)
  - Pre-req's for medical school
  - 4 years medical school
  - Require doctors to have a license to practice
  - 1910 Flexner Report helped shut down low-quality med schools
- Result: less med schools and less med students

More barriers to entry

- Caps on medical school class size
- Doctors need license to practice on their own
  - International med graduates
    - Long and arduous process to practice in the US
  - Nurses and Physician Assistants
    - Limited in scope of practice
  - Alternative medicine
    - Chiropractors, acupuncturists, etc. need licensure too

Tradeoffs from barriers to entry

- Because of barriers to entry, consumers have to pay above the competitive price
  - Physicians therefore earn **monopoly rents**
    - *Def.* wages above the competitive price due to artificial constraint of the market
- Barriers to entry ensure that physicians are qualified

Physicians as agents

- Patients trust physicians to act as perfect agents for their health
  - Doctors' foremost concern should be patients' well-being
  - Not their own financial status or reputation
- Are doctors always *perfect* agents for their patients?

Physician-induced demand (PID)

- Information asymmetry between doctor and patient
  - Patients cannot assess whether an extra test or procedure ordered by doctor is necessary
- Financial incentive for doctors to prescribe more services than needed
- Empirical evidence that when reimbursement rates for various procedures change, doctors prescription practices also change

Defensive medicine

- Defensive medicine
  - Overutilization of testing and services
  - Protects against malpractice lawsuits
- Doctors fearful of lawsuit may overprescribe (and overcharge) for only marginally-useful procedures
- Mello et al. (2010) estimate that medical liability system in the US costs $55.6 billion annually

Conclusion

- Physician supply highly regulated
  - Leads to a shortage of doctors
  - Hard for other health care providers to fill the void
- Investment returns to being a doctor and specializing is very high
- Physicians are not always perfect agents of care
  - Overutilization of care
  - Physician-induced demand and defensive medicine
  - Racial discrimination