



Are IPRs Opportunities or Constraints?

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Knowledge-based growth

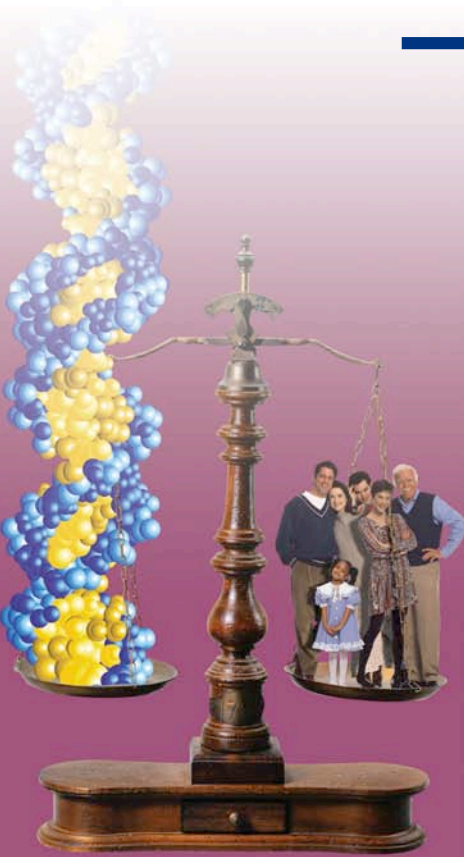
- Harks back to Schumpeter
- Knowledge-based growth is the adoption of new ways of putting things together (recipes)
- New ideas expensive to develop, valuable but easy to replicate
- IPRs raise issues



Economic effects of IPRs

Controversies reflect conflicts between:

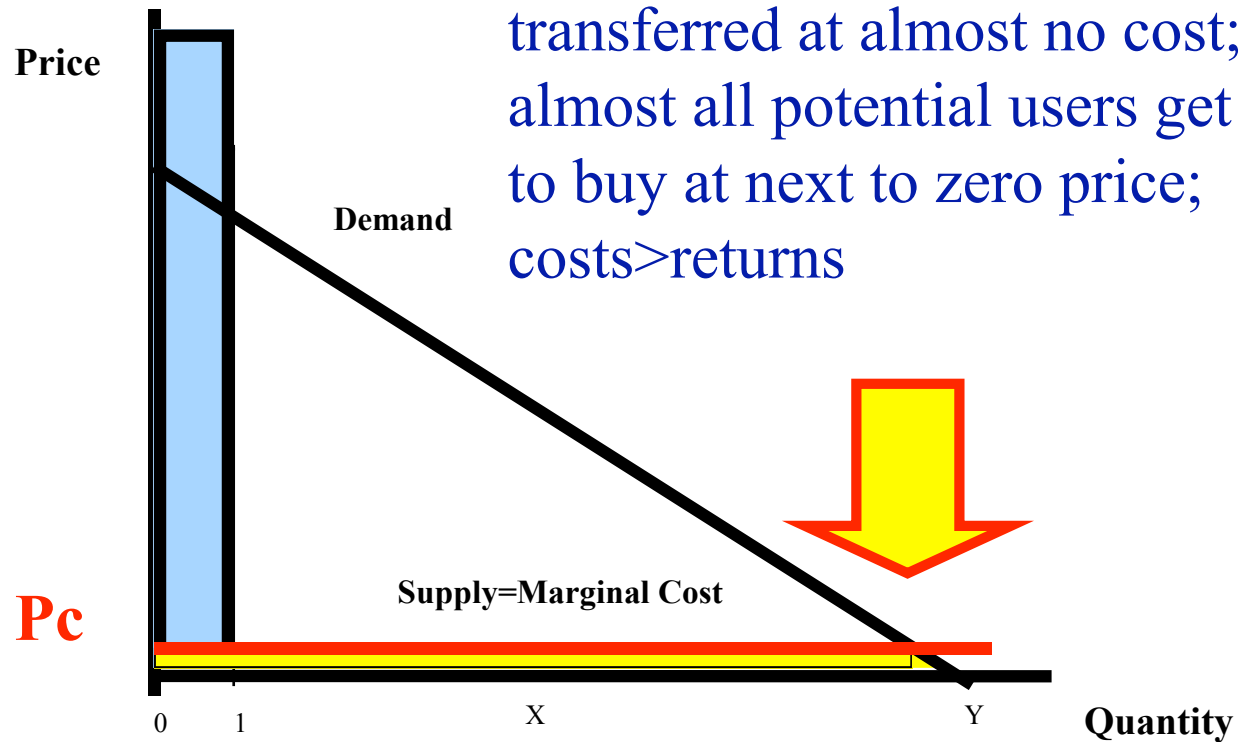
- Incentives for:
 - Invention (limited evidence?)
 - Disclosure (measurable)
- Market power that creates:
 - Monopoly (by time and space)
 - Transaction costs
 - Distributional effects



1. Market failure

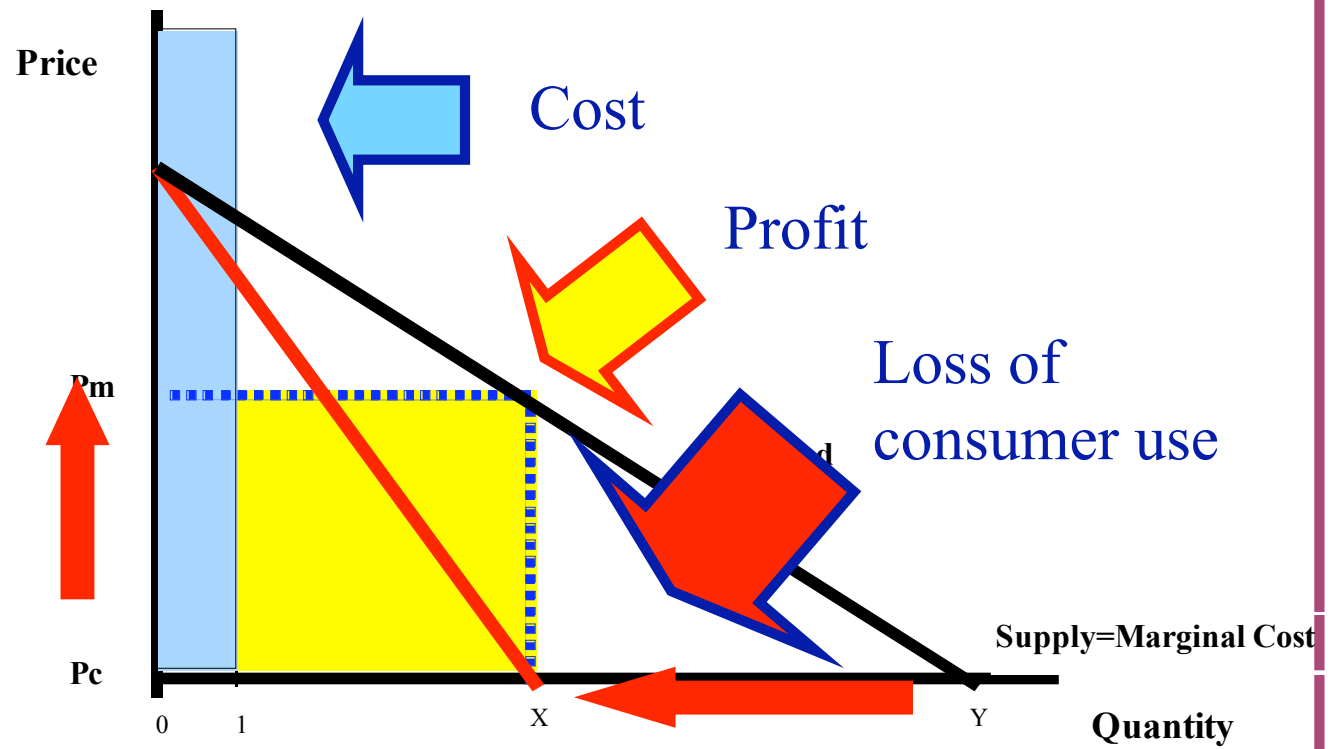


Without IPRs, ideas can be transferred at almost no cost; almost all potential users get to buy at next to zero price; costs > returns



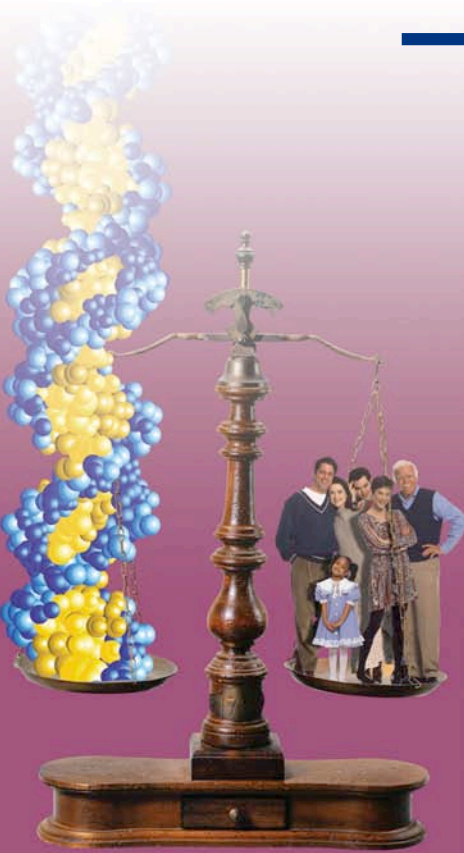
2. Second-best market

By restricting supply, producers can raise price and gain profit > costs, but some consumers excluded



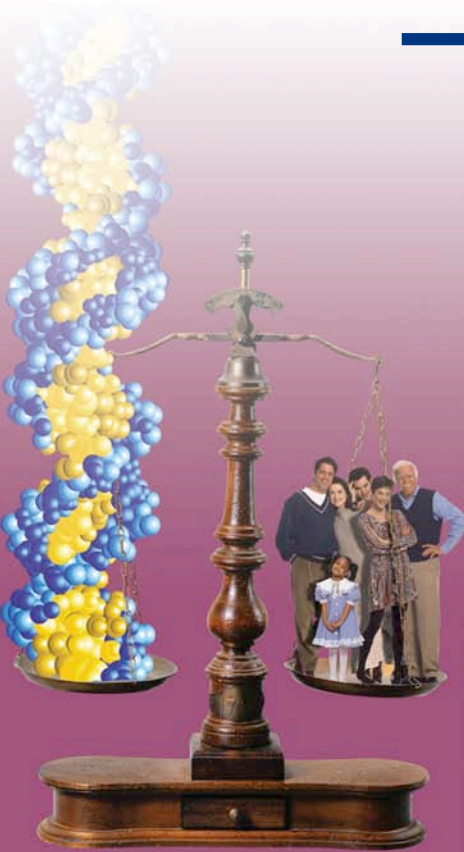
4 potential problems with IPRs

1. Project design: converting information into knowledge
2. Research: FTO
3. Commercialization: 'use' policies
4. Social impacts: recognizing the economic outcomes



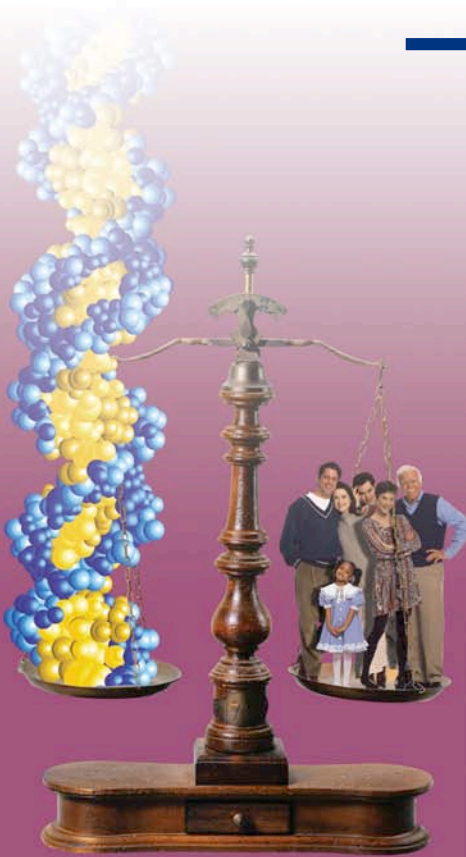
1. Project design problems?

- Basic knowledge in past came from public research; now partnered
- ‘3 Stooges’ problem; divergent goals raise transactions costs (Ryan and Phillips)
- Fewer incentives for basic knowledge (Phillips and Khachatourians):
 - scientists get more/new rewards
 - fee-for-service work more lucrative



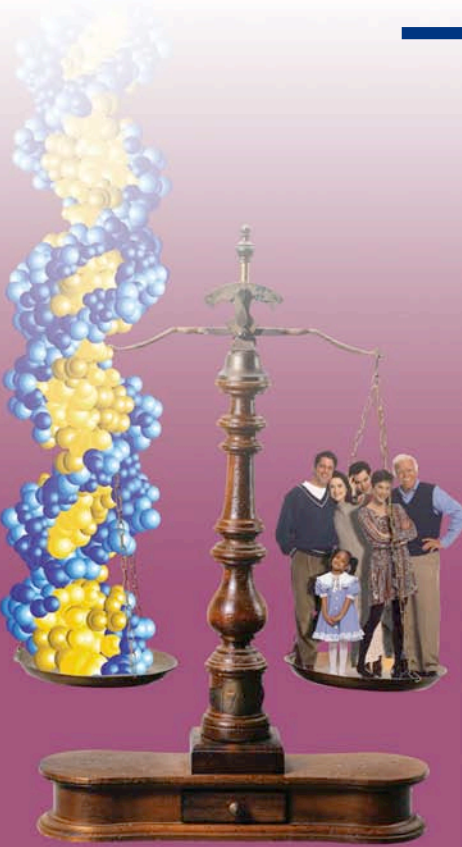
2. Research and FTO problems?

- Blocking power creates potential for opportunism (Lindner)
 - Overlapping claims and mechanisms
 - Patent strategies (e.g. narrow vs. broad claims; single vs. multiple markets)
- Barriers to new entrants can increase corporate concentration (Rausser et al)
- FTO generates transaction costs (Dierker/Phillips; Graff et al)



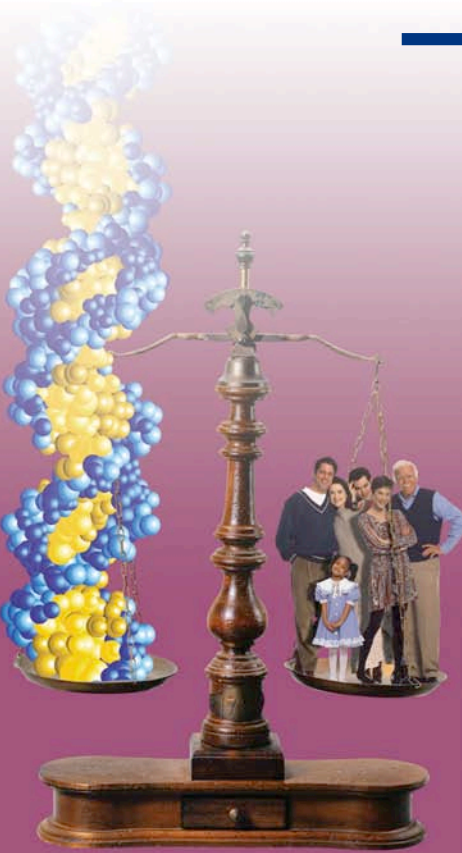
3. Problems of use?

- Loss of public good; 75% of patents never read
- Slicing and dicing of rights reduces ability to commercialize (Phillips & Gustafson)
 - Patents thinly distributed among institutions, limiting economies of scale
 - Narrow view of the market and incomplete patenting reduces value
 - Licensing priorities (local development, general access) create lower take up
- Public is proprietor, not market maker



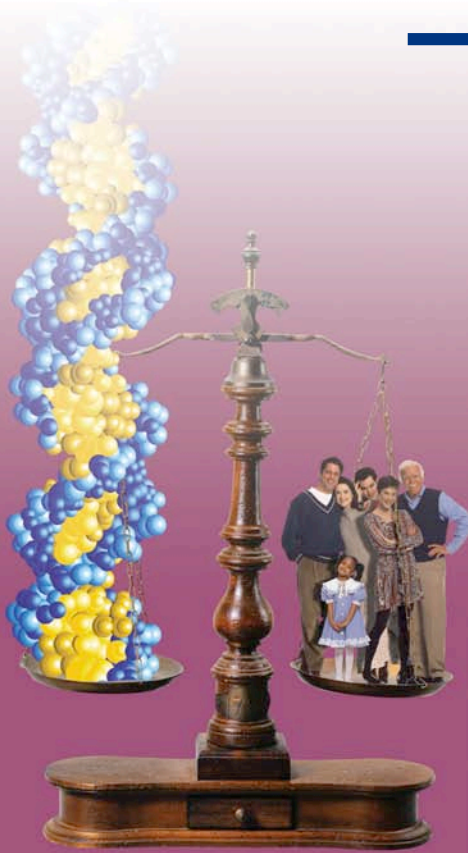
4. Social impacts?

- Do IPRs accelerate R&D?
 - Biotech offering significant gross returns (Kalaitzandonakes)
 - ROI on R&D +70% (Alston et al) but may be falling (Alston et al; Gray et al)
- How do IPRs change distribution of benefits (Moschini et al):
 - inventors capture 30-50%;
 - farmers get <30%; > for early adopters
 - consumers get <50%



Patents only one of many IPRs

- Four key means of protecting IP:
 - Legal: Patents, Trade Secrets, Plant Breeders' Rights, Trademarks, Copyright
 - Regulatory: Seeds Act, chemical, pharmaceutical regulations
 - Non-legal: Complementary technologies, selected R&D, environment, contracts
 - Publication
- Each technology/product line has different complex system/network



Source: Phillips, 2000

IPRs also embedded socially

- IPRs form the basis for regulating:
 - Efficacy: *owners* must provide evidence and manage
 - Risk: *owners* are proponents and responsible for evidence)
 - Liabilities: post-release quality and safety allocated to *owners* by regulation and tort law

Conclusions

- 27 years after change in public role in life-sciences
- needs to review role in marketplace related to
 - Research design
 - Invention process
 - Commercialization
 - Social impacts



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