

Two-Part Pricing and The True Cost of Patents



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Overview



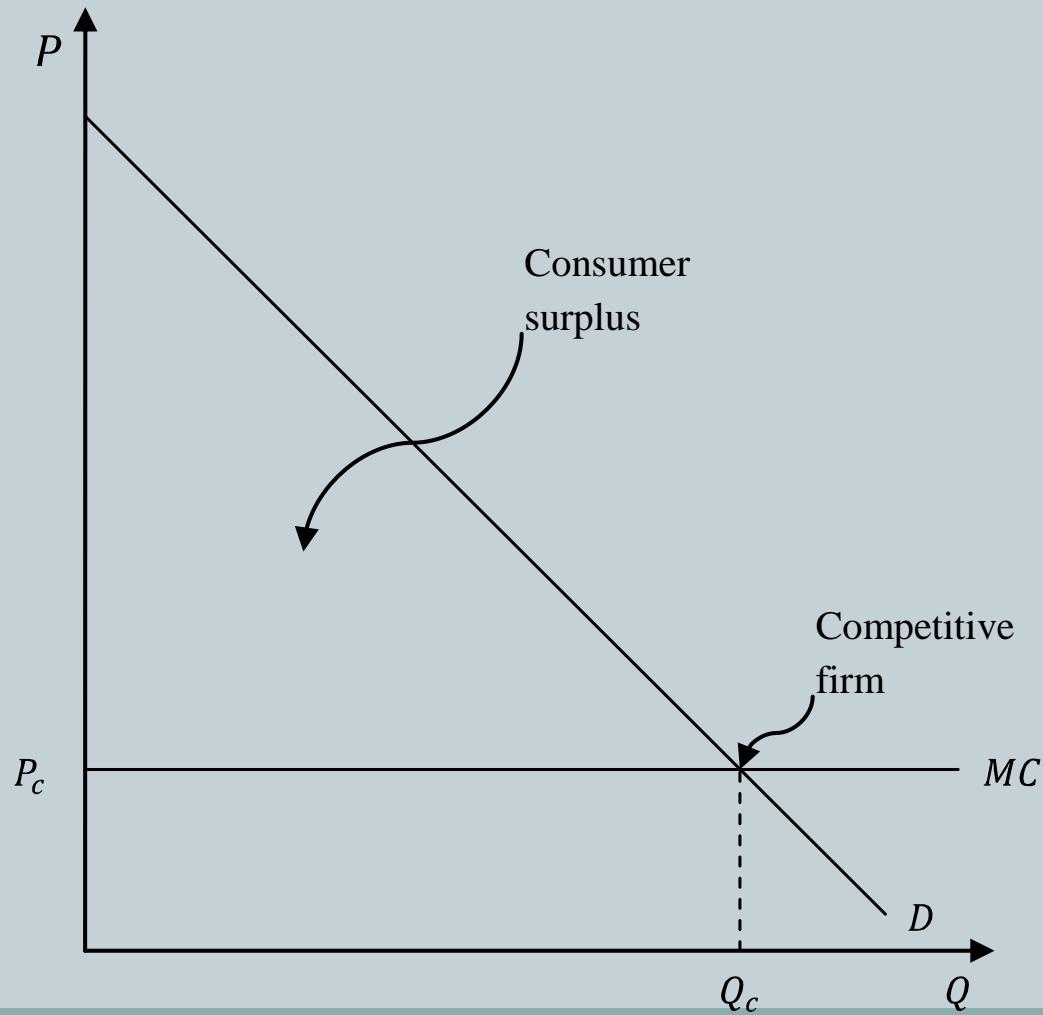
1. The conventional wisdom on patent tradeoffs
2. How those tradeoffs are changing
3. Thoughts on emergent considerations and optimal patent duration

Conventional Wisdom on Patent Tradeoffs

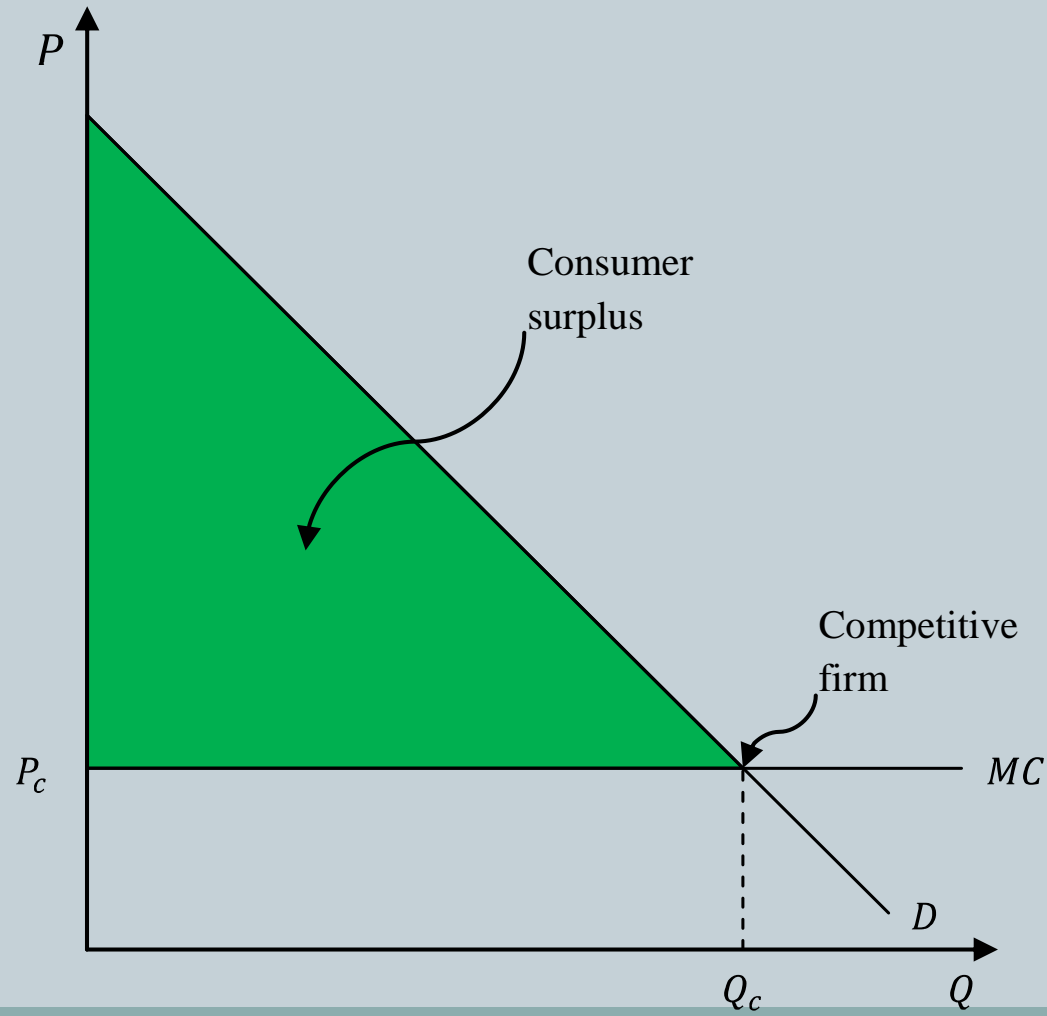


- Patents give inventor exclusive rights to sell her innovation
 - Incentive for innovation is monopoly profits
- Cost of monopoly rights is monopoly prices
 - Some consumers inefficiently priced out of the market
- Basic trade-off
 - Greater innovation (dynamic efficiency) versus foregone consumption (static inefficiency)

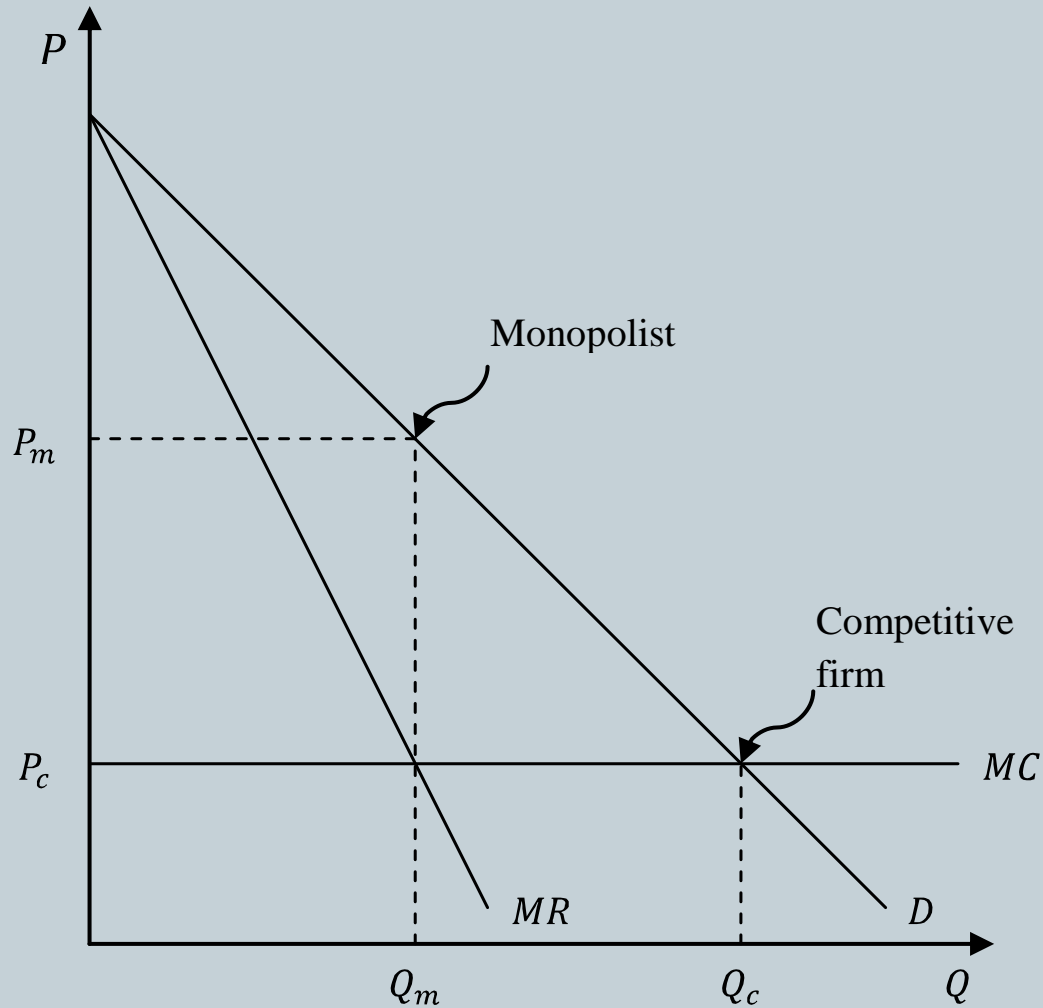
A Competitive Firm Prices at Cost



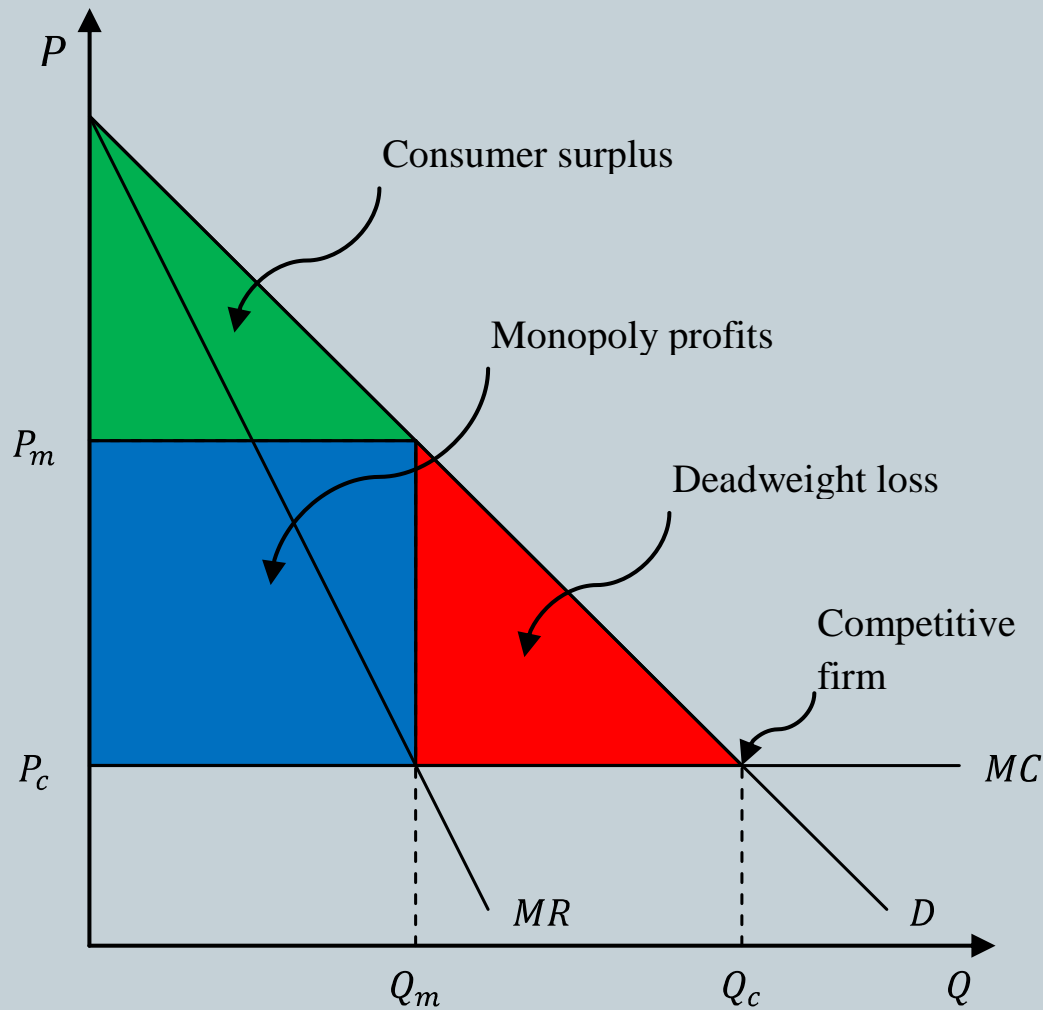
Large Consumer Surplus



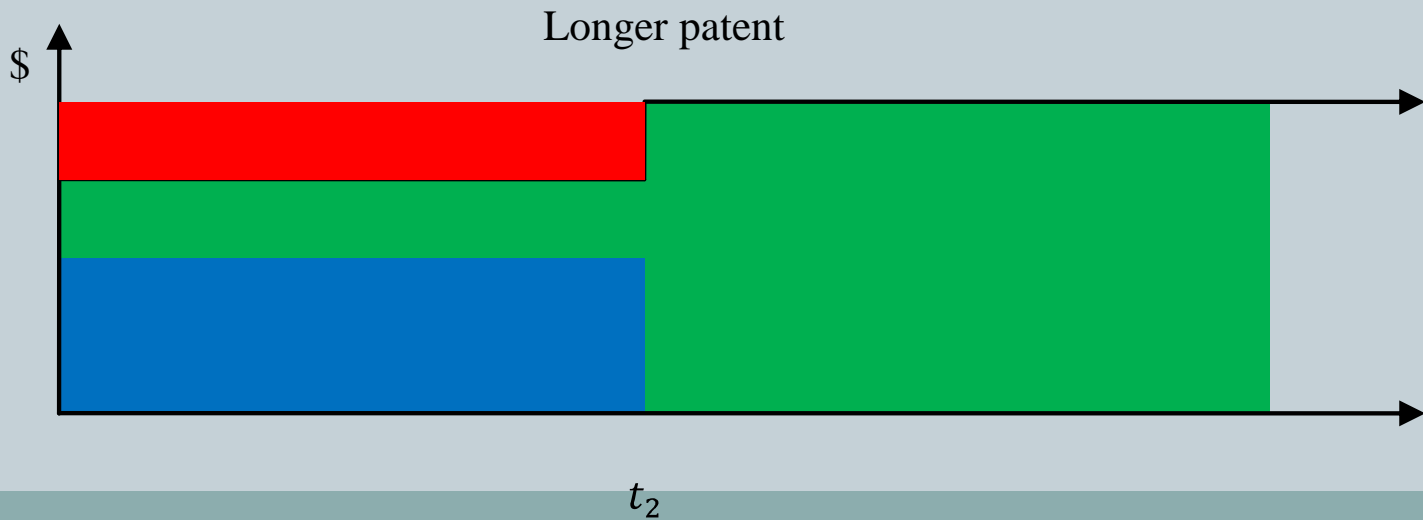
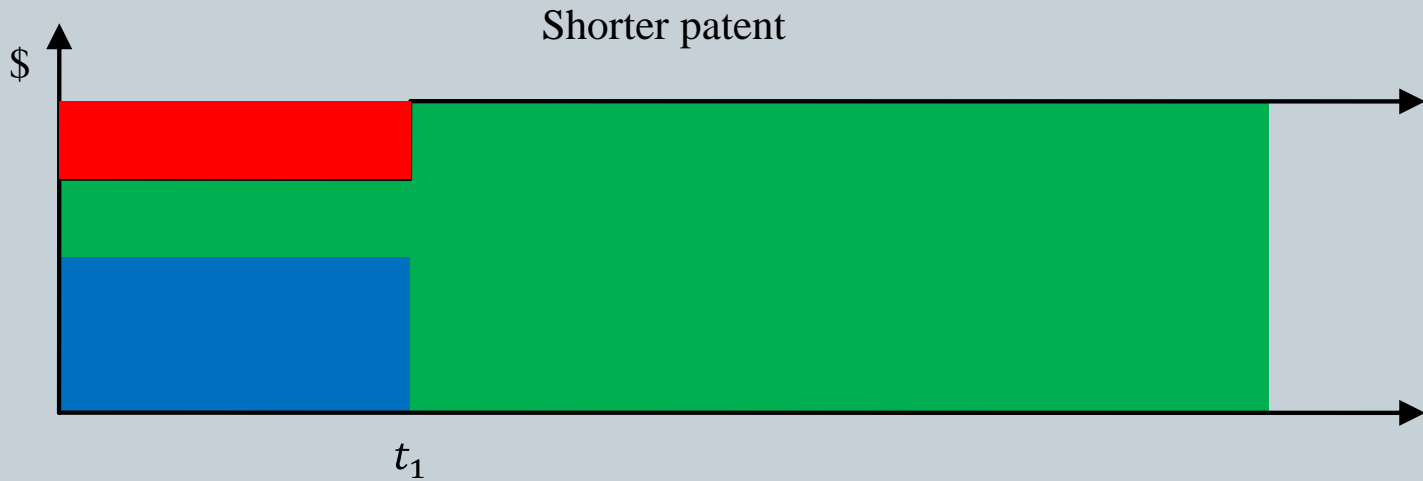
Monopolist Sets a Higher Price



Higher Profits, But Deadweight Loss



Optimal Patent Length?



Two-Part Pricing



- Scheme for pricing goods in such a way that deadweight losses are eliminated
- Part 1: Charge an initial fee for accessing a bundle of goods (patents, information, or anything else)
- Part 2: Charge an additional per-unit fee for each good purchased

An Example



- Imagine a radio station that wants to acquire licenses to a large number of songs
- Expensive to negotiate an individual license for each song it wishes to play
- One way around the problem:
 - Song owners pool their songs
 - Radio station is charged an up-front price for accessing the pool
 - Station then has to pay a per-song price for each song licensed
- This is the ASCAP system

Advantages of Two-Part Pricing



- Allows price discrimination among buyers who value the good differently
 - Eliminates deadweight losses
- Two requirements:
 - Initial access price must be below the buyer's valuation
 - ✦ Ensures that no one is priced out up front
 - Per-unit price must be close to marginal cost
 - ✦ Ensures that the per-unit price doesn't rise above what a purchaser would pay in a competitive marketplace
 - ✦ In the ASCAP system, per-unit price is \$0

Illustration of Two-Part Pricing

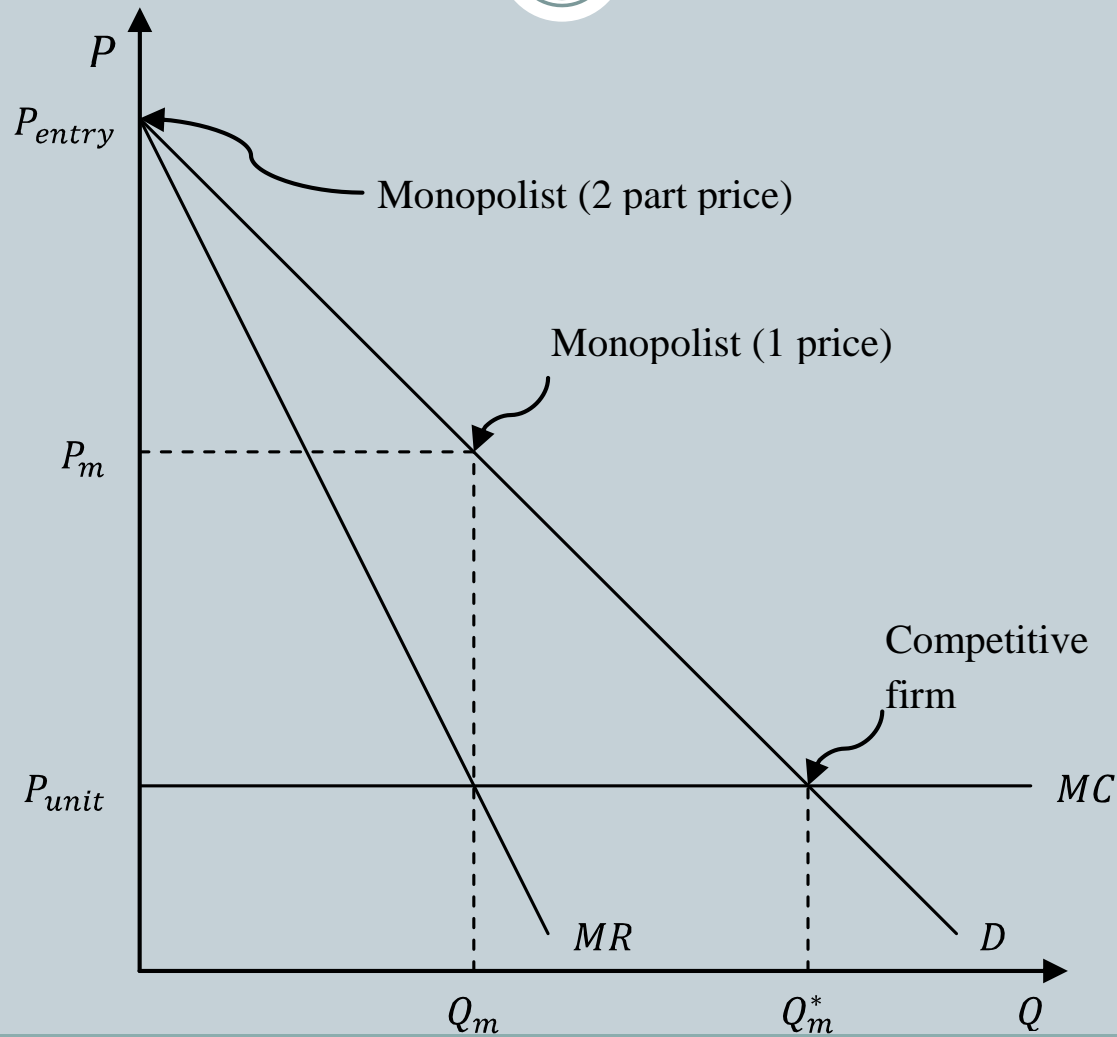
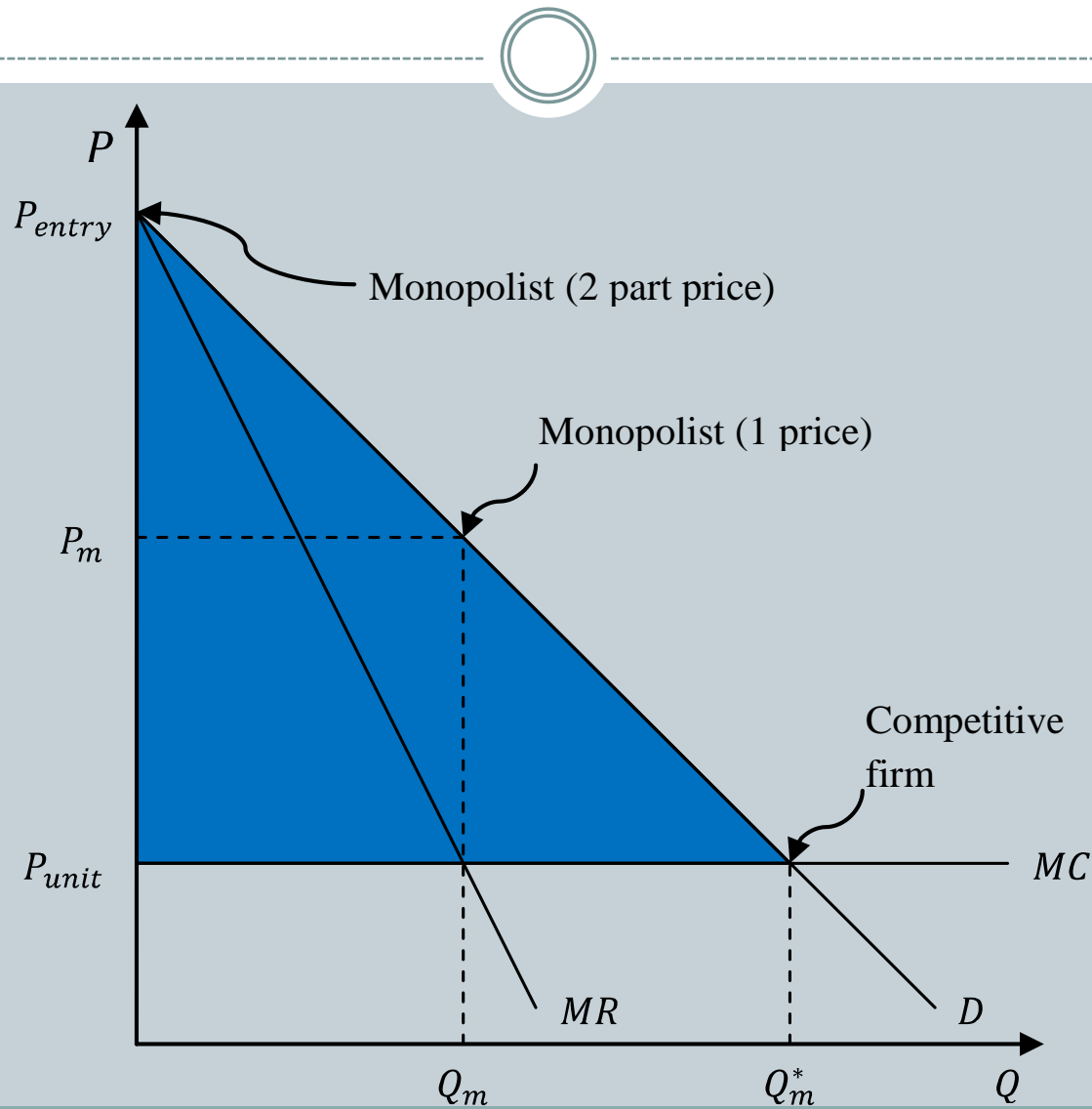


Illustration of Two-Part Pricing



Two-Part Pricing of Patents



- Our theory: two-part pricing of patents already exists
- What's more, the groundwork has been laid for it to expand significantly

Existing Two-Part Pricing



- **Health insurance**

- Provides access to prescription drugs and medical devices covered by patents
- Health insurance premium is the up-front price
- Co-pays are the per-unit price
- 83% of Americans are covered by some form of health insurance
- That number may rise when the Affordable Care Act comes into effect

Expanded Two-Part Pricing of Patents?



- Patent pools and cross-licensing agreements
 - Originally conceived as mechanisms for reducing transaction costs
 - Can act simultaneously as mechanisms for two-part pricing as well
- Structured much like ASCAP
 - High-tech and computer firms pool patents
 - These patent pools charge an up-front fee for access
 - That fee allows the purchaser to license any number of patents
 - ✦ Per-unit price is generally \$0, just like ASCAP

Limitations on Patent Pools



- Antitrust concerns have limited the number of patent pools
 - Fear was that patent pools could facilitate cartel behavior
 - DOJ has since allowed pools on standardized technologies (MPEG, Bluetooth, DVD, 4G wireless, etc.)
 - Still only ~37 pools, only a few thousand patents
- Upfront price has to be low enough
- Not accessed directly by consumers
 - But similar effect when filtered through competitive intermediaries

Cross-Licensing?



- Possible role for cross-licensing in filling gaps left by patent pools?
 - *Sometimes* functionally equivalent in limiting up-front pricing
 - But access issues for smaller firms
 - Also very difficult to learn the extent of cross-licensing

Patents by Technological Field

Category	Estimated percentage	Estimated Number Granted in 2010
Mechanics	22.1%	52,396
Computer-Related	16.2%	36,527
Chemistry	13.9%	32,966
Optics	8.6%	20,385
Semiconductors	6.2%	14,811
Pharmaceuticals	5.2%	12,422
Electronics	5.2%	12,263
Software	5.1%	12,104
Automobile-Related	4.8%	11,466
Medical Devices	4.3%	10,192
Communications-Related	2.8%	6,529
Biotechnology	2.5%	5,892
Energy-Related	1.6%	3,822
Acoustics	1.5%	3,504

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Total involved:	11%	28,506

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Total involved:	47.5%	110,740

Prescriptions and Implications



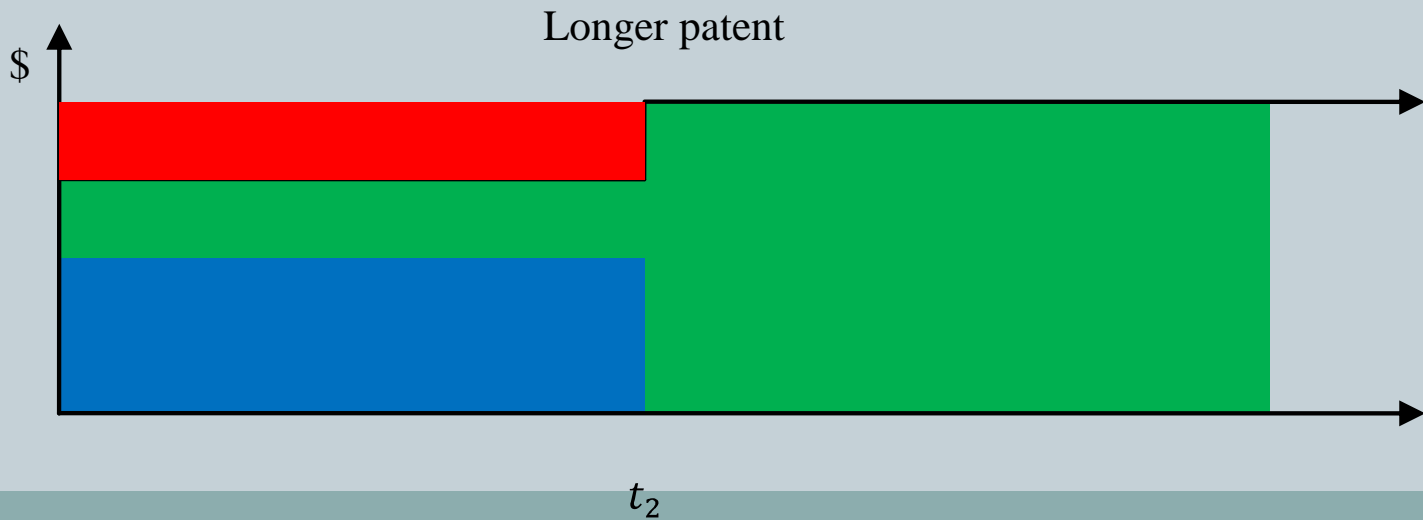
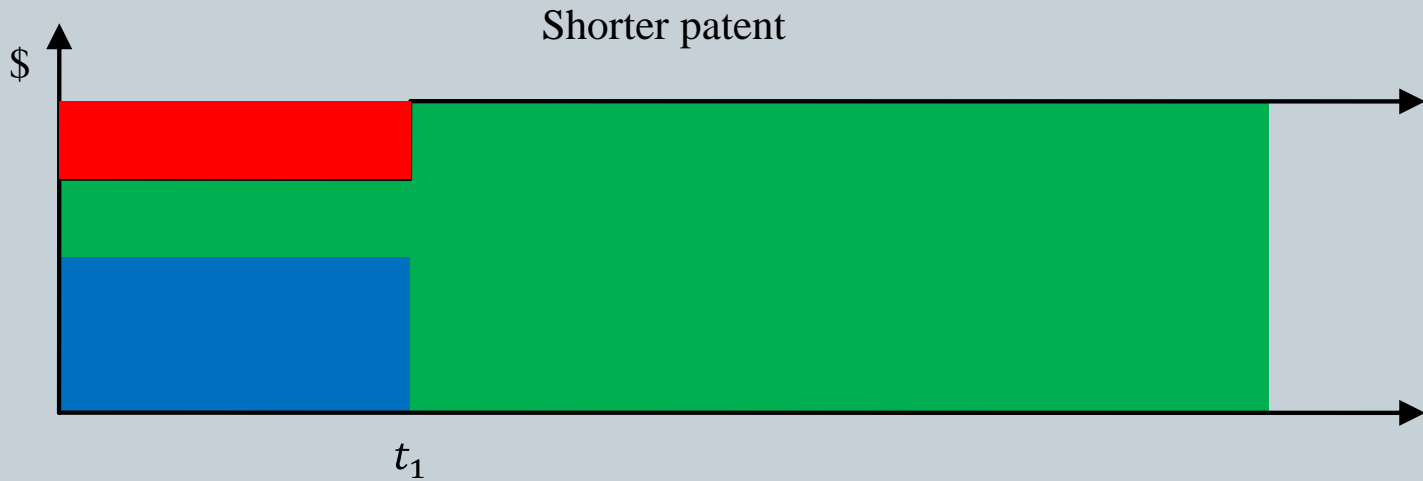
- **Policy prescriptions**
 - Expand access to health insurance and other cost-spreading programs that function as two-part pricing
 - Encourage more patent pools; police cartel behavior separately
- **Theoretical implications**
 - As two-part pricing becomes more widespread, static efficiency losses from patents diminish
 - What were previously second-order concerns become more important:
 - ✦ Races, thickets, transaction and holdup costs, etc.
 - Differential treatment for industries with two-part pricing?
 - Implications for optimal patent length debate?

Optimal Patent Length?

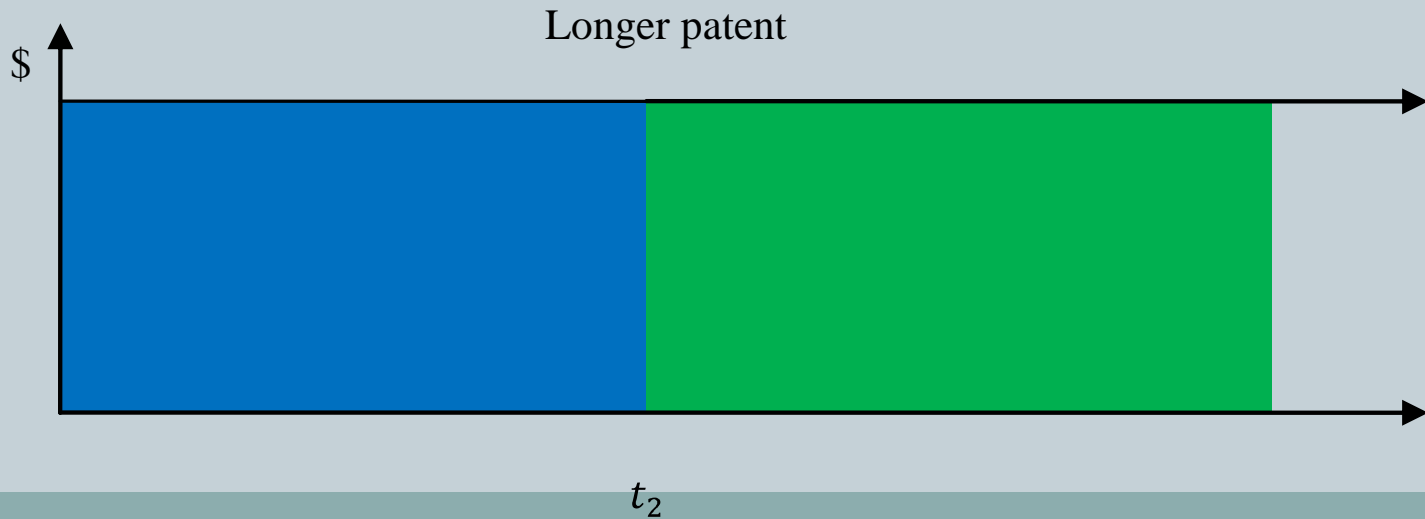
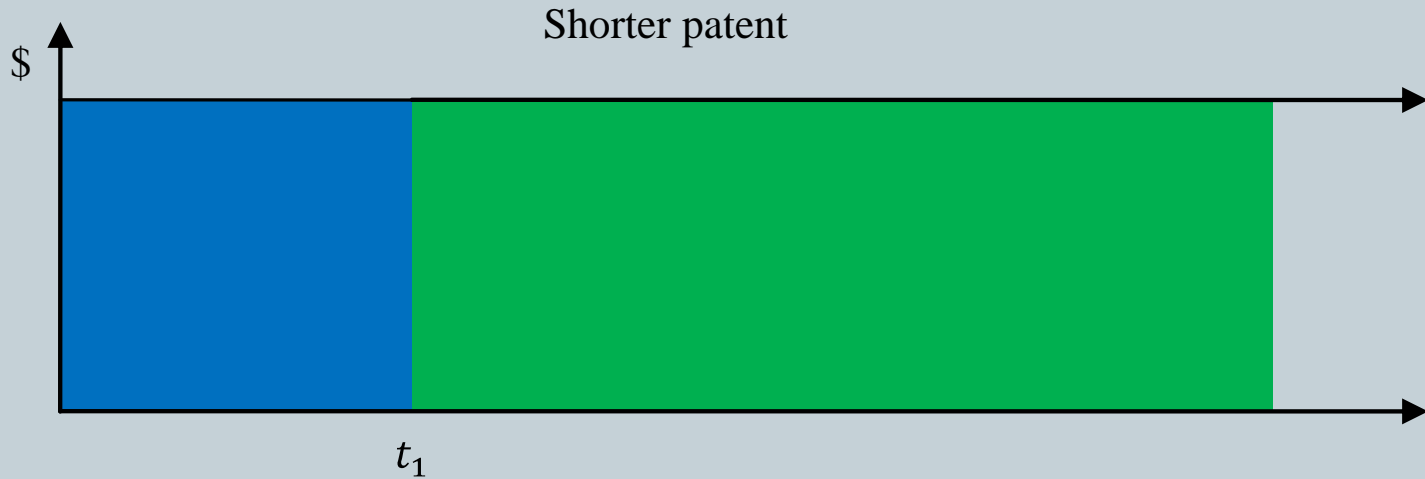


- Longer patent terms create greater deadweight losses
 - But also greater incentives for innovation
- If two-part pricing becomes widespread, the amount of deadweight loss could diminish
- Does this mean we would want longer patent terms?
 - Not necessarily.
 - Transaction costs, costs of thickets, rent-seeking become paramount – though pools also help solve thicket problems
 - Tradeoff between producer and consumer surplus
 - ✦ Implicates debates regarding antitrust policy
 - ✦ Distributional consequences

Optimal Patent Length?



Optimal Patent Length?



Conclusion



- Deadweight losses from patents will diminish as insurance, pools, cross-licensing increase
- Formerly second-order considerations such as races, thickets, and transaction costs will become more prominent
- Patent term length will implicate transaction costs, thickets, and distributional issues as much or more than static inefficiency
- Supports differential treatment for industries with two-part pricing
- Analysis applies to patent breadth as well