

## TWO-PART PRICING FOR PATENT PROTECTED MEDICINES - AN ECONOMIC ANALYSIS FROM A SWEDISH HEALTH CARE PERSPECTIVE

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### Conclusions

Quantities are unlikely to be efficient with the current pricing model in the Swedish oncological market. A two-part pricing structure is likely to increase the efficiency in such markets but is also associated with some serious challenges related to bargaining, implementation and arbitrage problems.

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| <p><b>Pros</b></p> <p><b>Efficiency gains</b></p> <ul style="list-style-type: none"> <li>• 2PP is likely to increase efficiency since current list prices are well beyond marginal costs</li> <li>• Increased resources to fund R&amp;D. If the increase in surplus due to 2PP is divided equally between buyer and seller there will be more resources for R&amp;D</li> </ul> <p><b>Risk-reduction and budget control</b></p> <ul style="list-style-type: none"> <li>• 2PP can partly be considered an insurance against swings in demand</li> </ul> <p><b>Self-selection</b></p> <ul style="list-style-type: none"> <li>• If buyers are offered different contract forms they will self-select into the contract form that benefits them the most</li> </ul> | <p><b>Cons/obstacles</b></p> <p><b>Bargaining challenges</b></p> <ul style="list-style-type: none"> <li>• Agreeing on the amount to be paid upfront will be problematic</li> </ul> <p><b>Implementation problems</b></p> <ul style="list-style-type: none"> <li>• Having a reasonable view of which PPM to use and how much will be problematic</li> </ul> <p><b>Free-riding and arbitrage</b></p> <ul style="list-style-type: none"> <li>• To use 2PP the seller must be able to ensure that the PPM is not resold to a higher priced market. This could become a problem in countries with weaker institutions.</li> </ul> <p><b>Self selection</b></p> <ul style="list-style-type: none"> <li>• Higher transaction costs due more complex contracting</li> </ul> |
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### BACKGROUND

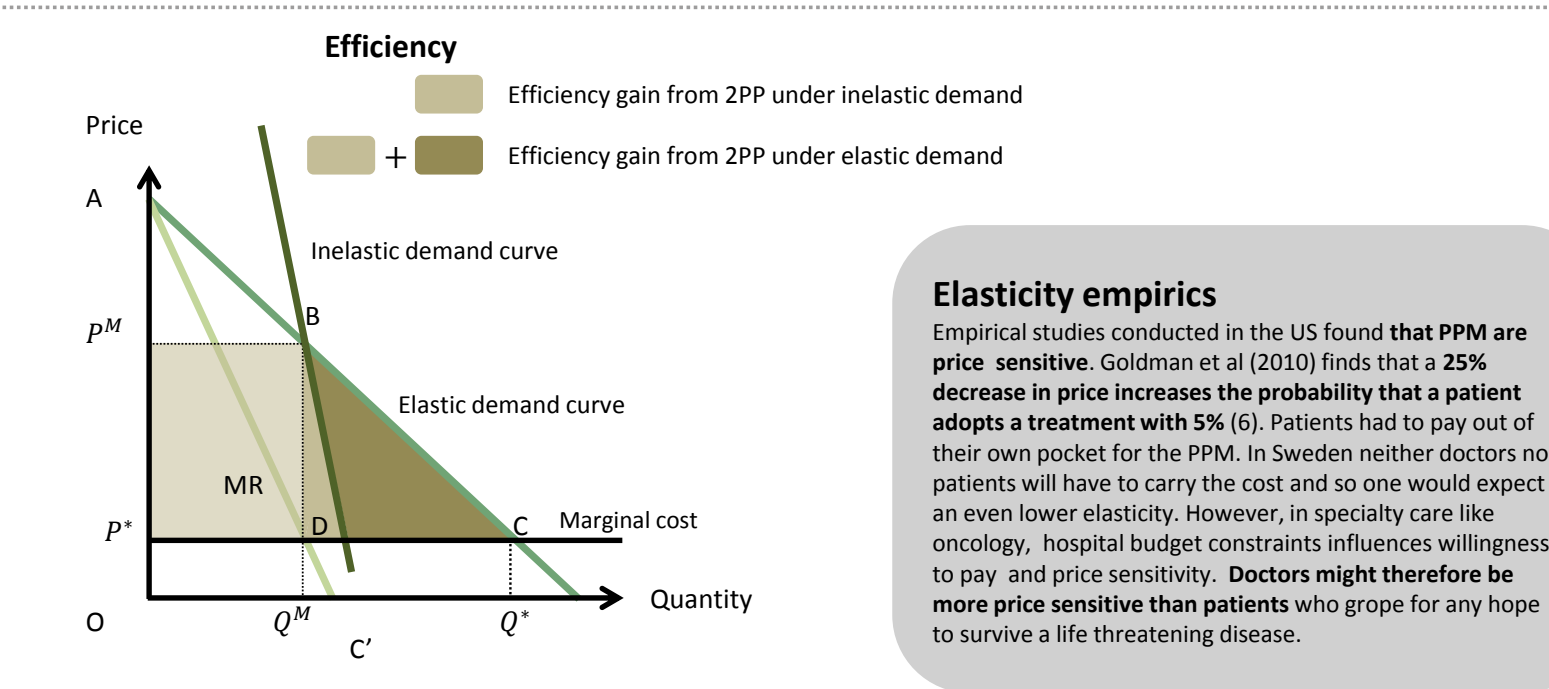
Many new medicines are targeting small patient populations. In order to recoup R&D costs the medicines are highly priced. A dilemma is that the price per patient (or pill or vial) can be seen as blocking access. As the marginal cost (MC) of a new product is lower than the charged price there is a well-known waste. One option is to establish a **two-part pricing model** with a “subscription” price plus a usage price close to MC.

### OBJECTIVE

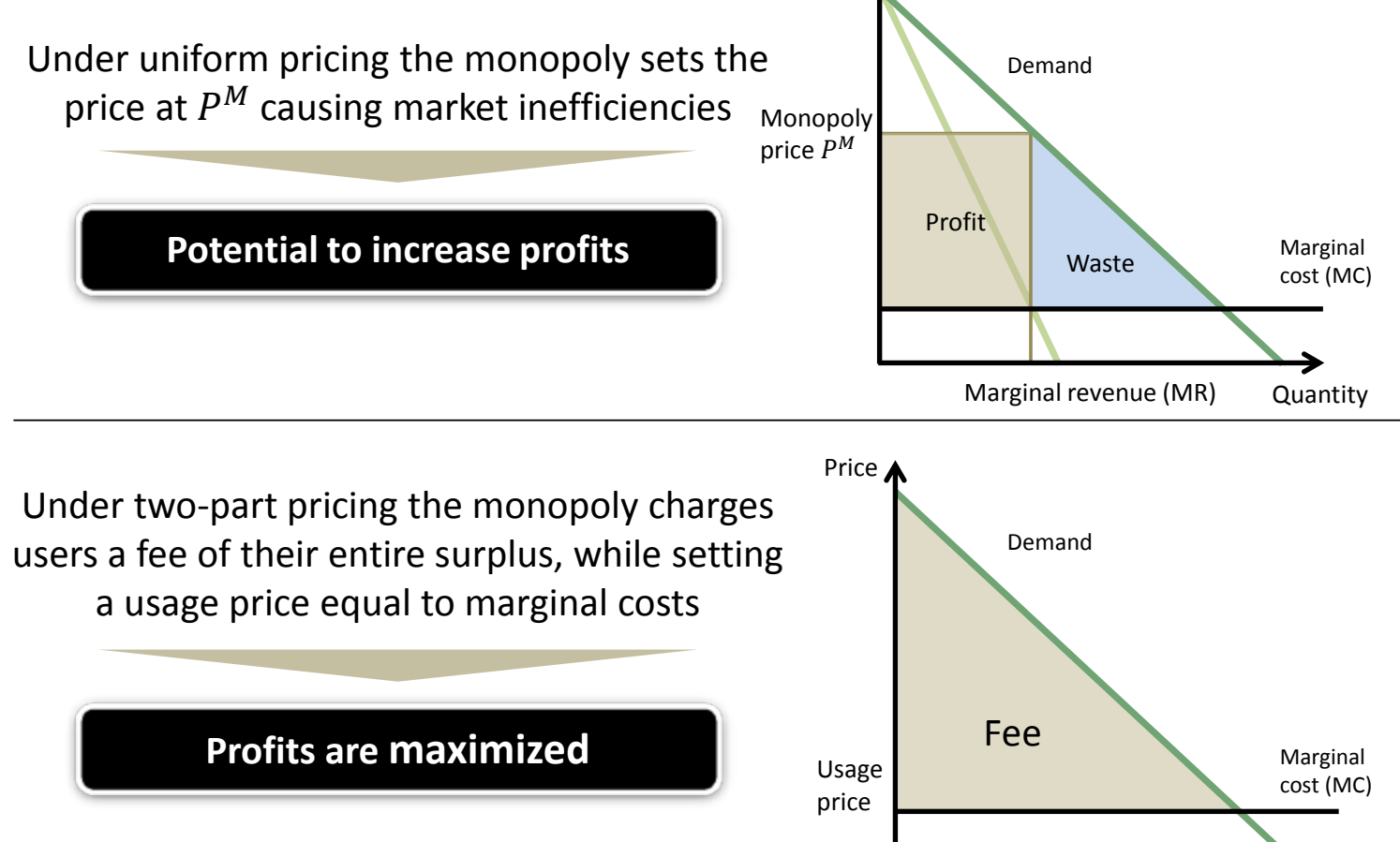
The objective of this paper is to discuss the opportunities of using the two-part pricing in the market for patent protected medicines (PPM) based on the theories and concepts from microeconomics and industrial organization.

### Price elasticity

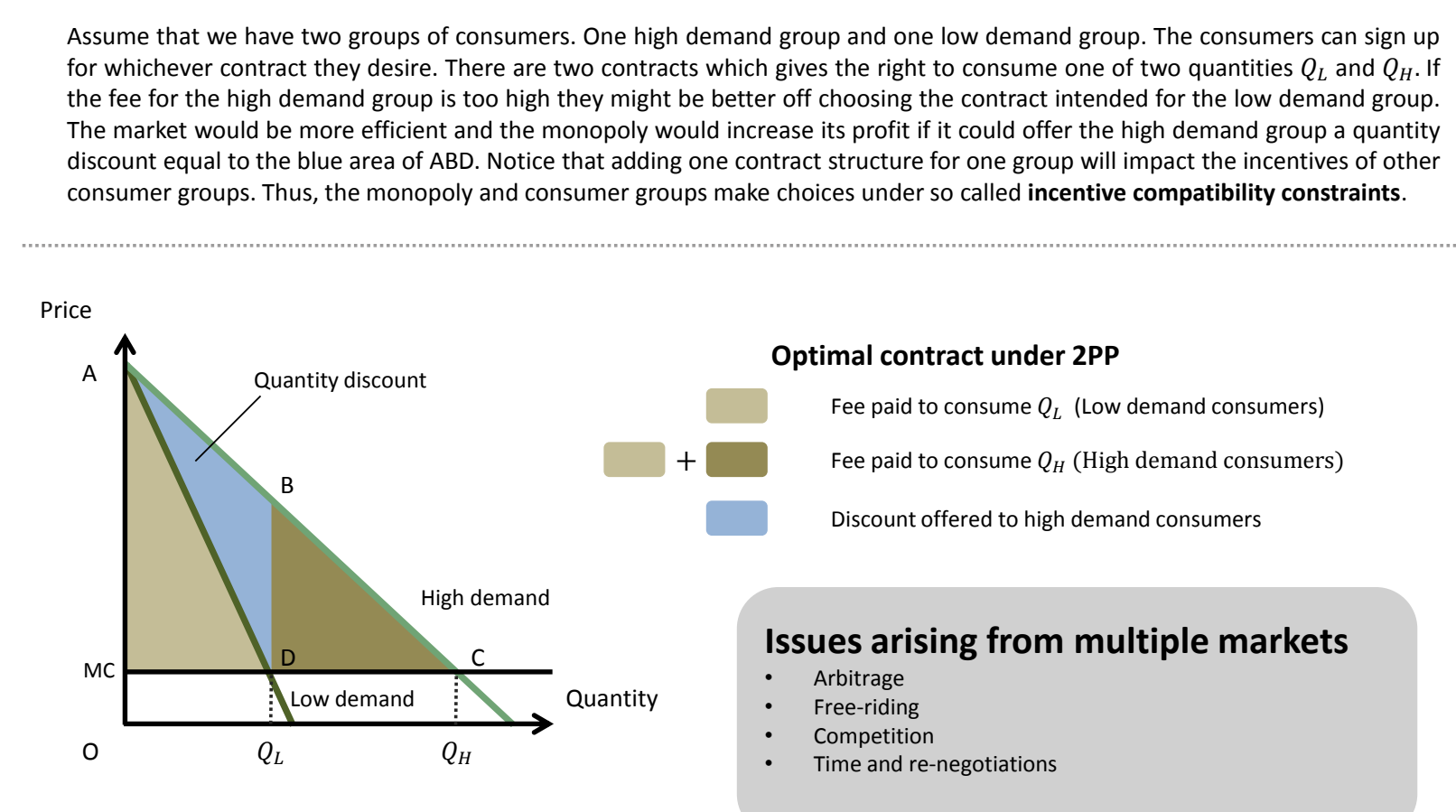
The efficiency of 2PP depends on the demand curve's elasticity. That is, a lower unit price will increase the quantity consumed of the PPM. The more elastic the demand curve the more gain there is in changing from uniform pricing to 2PP.



### Uniform vs Two-part pricing in theory



### 2PP and heterogeneous demand



### Managing risks via re-negotiations and institutional requirements for 2PP

**Payment contingent on efficiency of PPM**

Re-negotiations need to occur due to factors unknown at the time of the signing of the initial contract. One important factor in valuing a PPM is its effectiveness. Not knowing the effectiveness of a newly launched PPM increases the difficulty in determining the fixed fee. Situations like these are in some countries resolved through various outcome-based contracting. For example in Italy in some schemes the government only pays the cost for treatments on patients that respond positively to the treatment. (3,10)

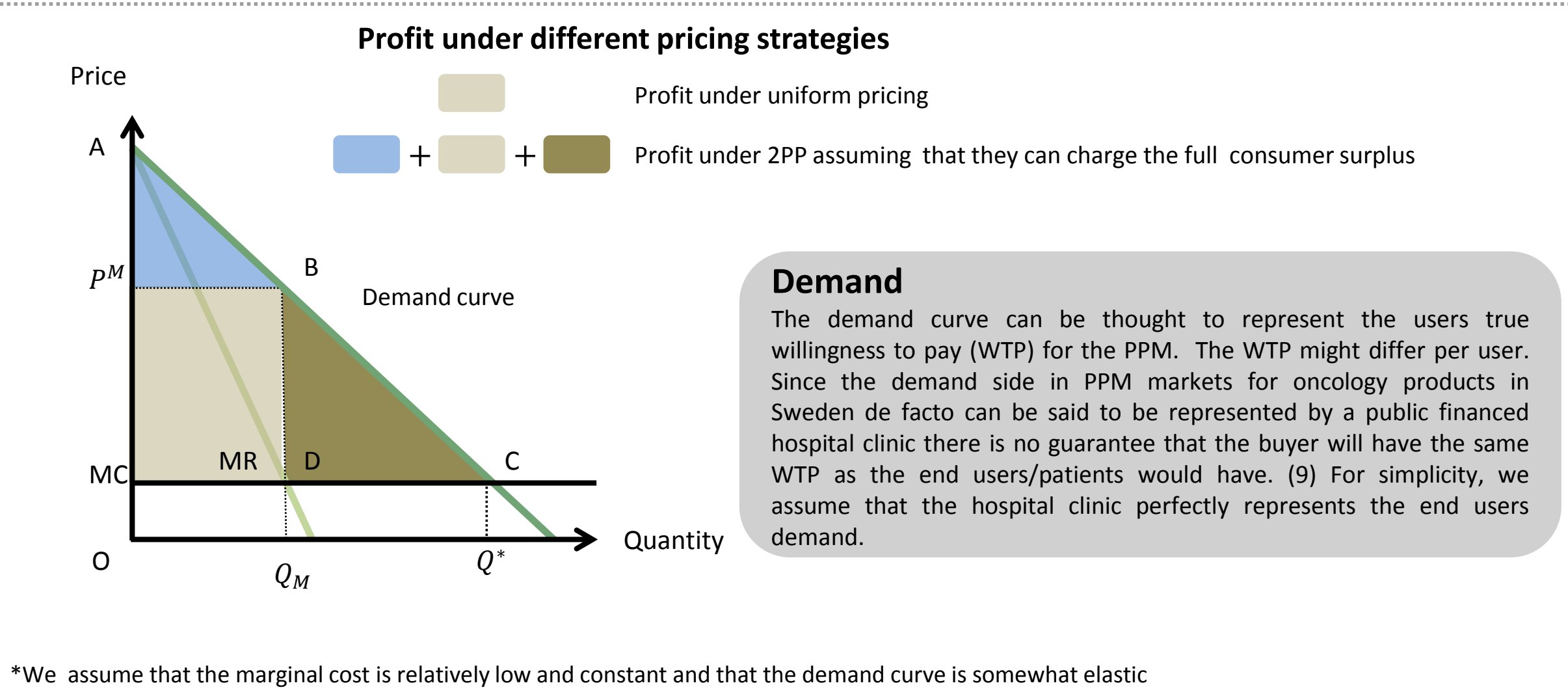
**Institutional requirements for 2PP**

2PP sets additional requirements on the institutional structure of the buyer. Agreeing on the large fixed fee before providing the treatment requires further information of the PPM's characteristics. Some consequences of the large fixed fee under 2PP are:

- Increased coordination ability of the buying organization
- Restrictions on the buyer's budget of alternative treatments of certain patient groups. 2PP will temporarily "lock in" the buyer to the usage of a specific treatment
- Increased information requirements and increased transaction costs. The increased transaction cost will make the buyer hesitant to sign a 2PP contract unless the uncertainty of the new PPM somehow is incorporated in the negotiation
- A centralization of the bargaining process to a national level would facilitate the usage of 2PP schemes (8)

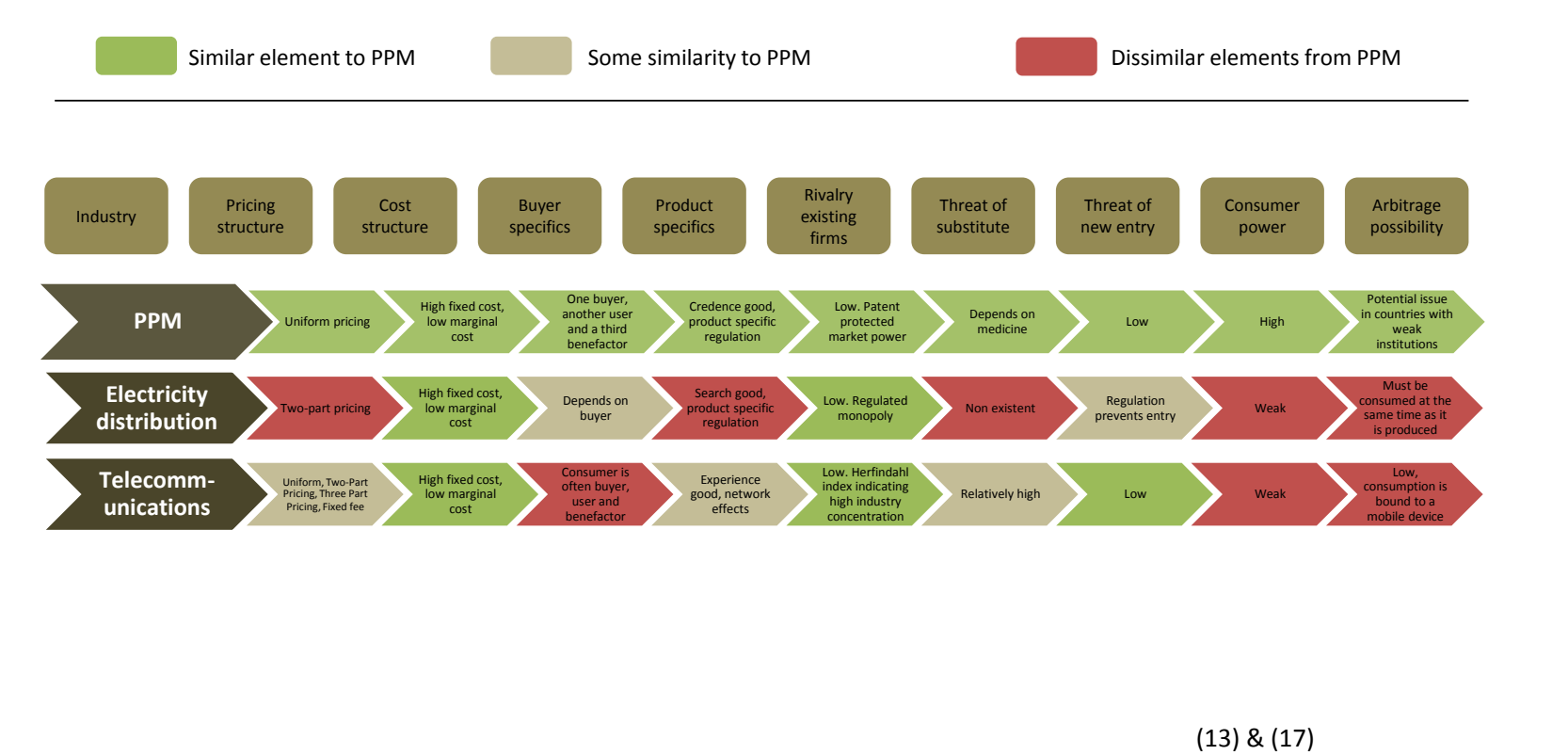
### Current price situation in patent protected medicine (PPM) markets

The traditional approach in PPM markets has been to set a fixed price per patient (or pill or vial). The problem with uniform pricing for the PPM industry is that it needs to cover the large R&D cost. (8) Since  $p^M > MC$  there is an **efficiency loss** equal to the area of the green triangle BCD\*. If instead the PPM supplier would use two-part pricing (2PP) by charging a usage price equal to MC and an access fee equal to the area of ACMC the market would be efficient and the firm would more effectively recoup the R&D costs. (15)



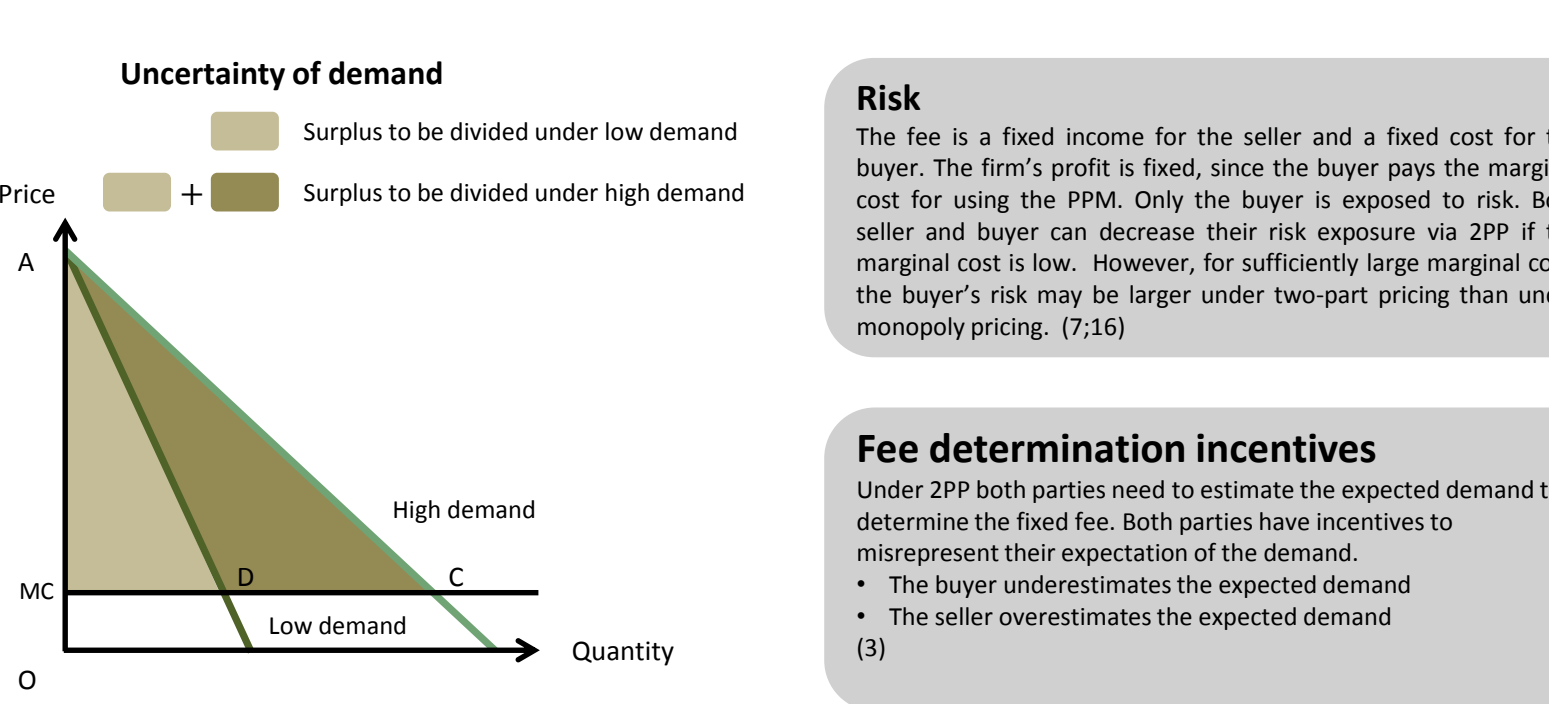
### Examples of pricing structures in two other industries

A brief study of pricing mechanisms in a few industries with large fixed costs and small marginal costs finds that price discrimination is prevalent even if the market power originates from different sources.

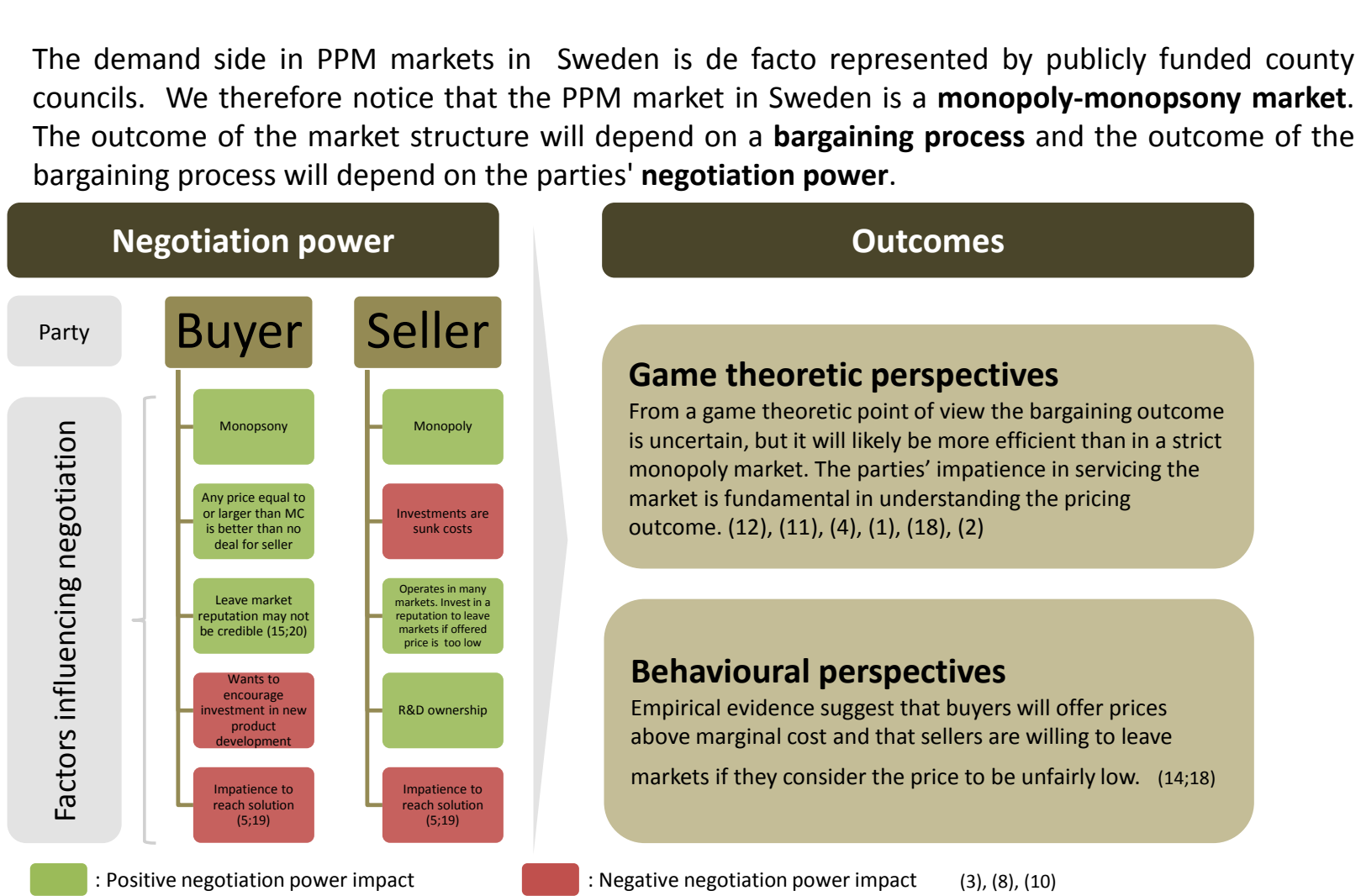


### Determining the fee under mutual uncertainty of demand

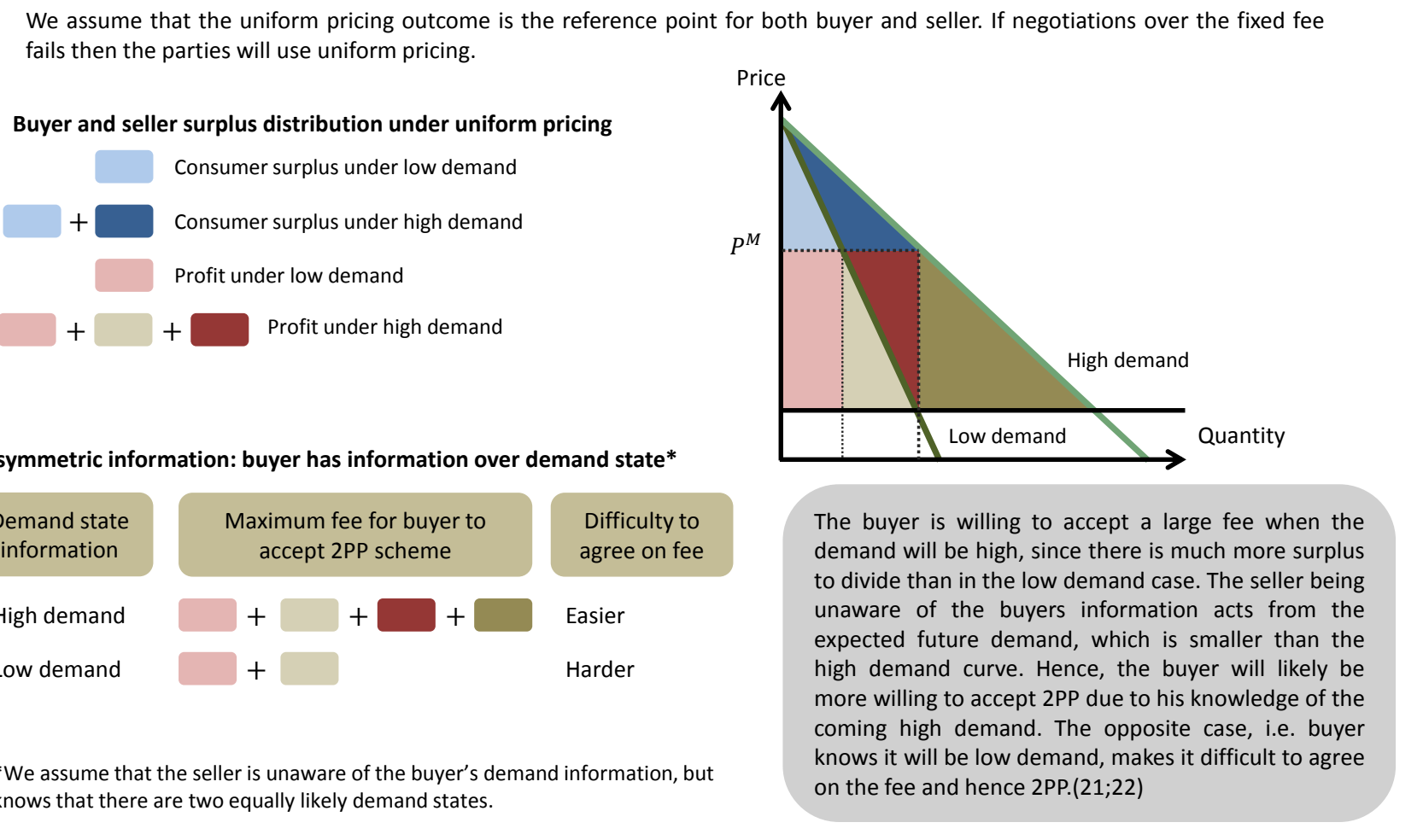
Assume that we do not know how large the future demand will be. We assume that there exists two equally likely demand curves. The low demand curve (D) corresponds to the MR curve of the high demand curve (C). Suppose the seller charges a usage price equal to marginal cost. Then the mathematically expected surplus is given by  $\frac{2MC \cdot AC}{3}$ . This surplus is to be divided in the bargaining process.



### The fee bargaining process



### The bargaining process and asymmetric information



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