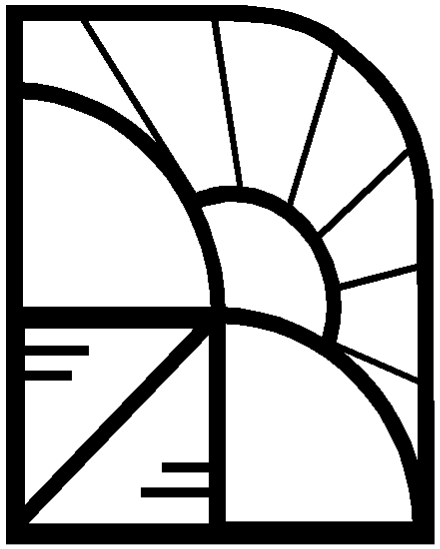

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A Primer on Competitive Bidding for Universal Service

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Preliminaries

- What follows are preliminary and general thoughts on USF reform and competitive bidding for subsidy dollars.
- The Phoenix Center does not have a set position on USF reform or competitive bidding.
- The statements herein should not be quoted or cited without permission.
- We appreciate any suggestions for our future research on USF and competitive bidding.

Preliminaries

It is not possible to discuss all of the interesting problems related to Universal Service, Competitive Bidding in procurement, or bidding for Universal Service. These issues are very complex and interrelated, and the difficulty rises because Universal Service is an "embedded" institution.

Outline

I. Why Have Universal Service?
II. Competitive/franchise Bidding
III. Multiple Firms and Costs
IV. Benefits of Competition
V. Costs of Subsidies
VI. Make the Soup

Why Have Universal Service?

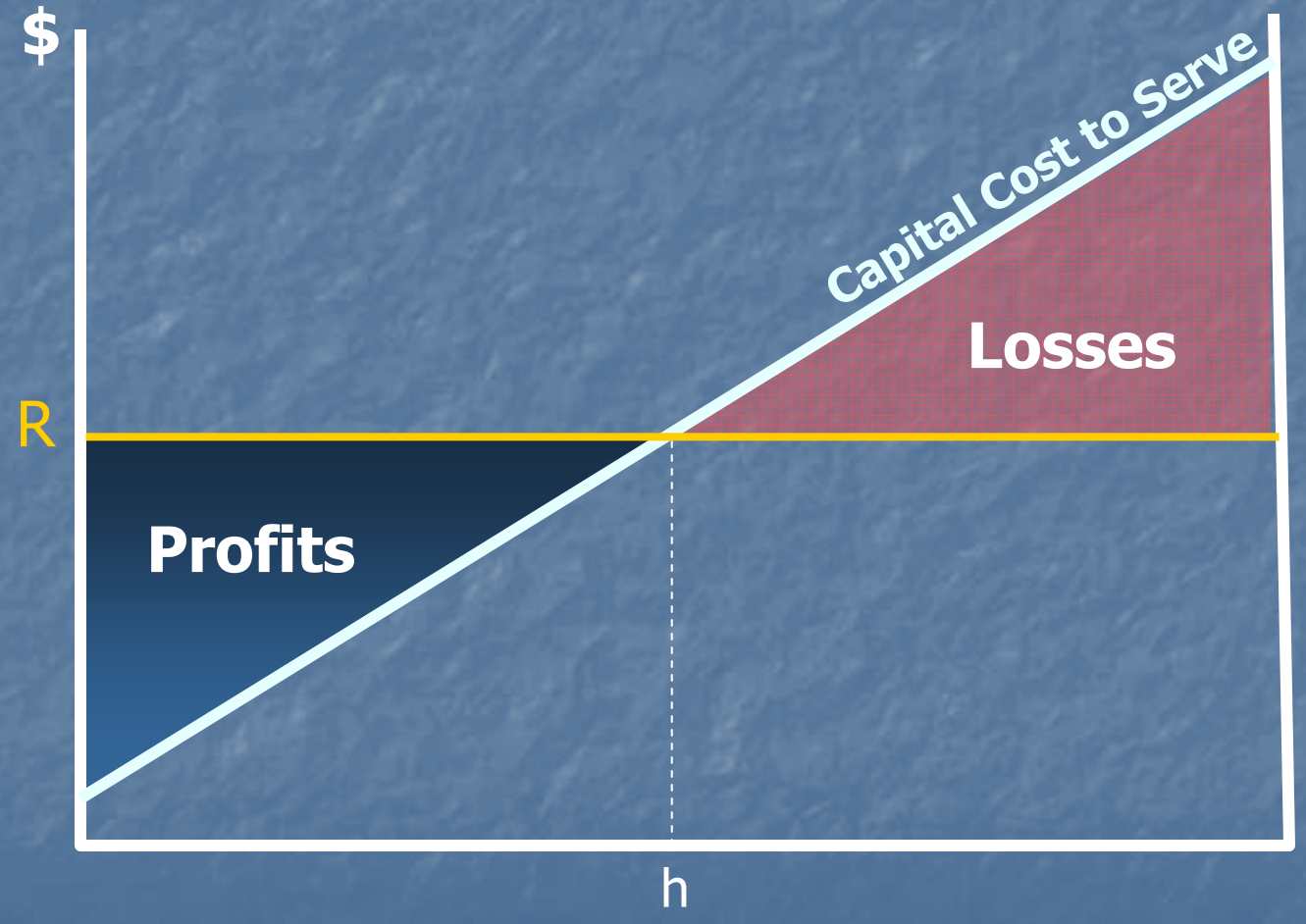
"...the main goals of the universal service program are to ensure that all consumers--including those in high cost areas--have access at affordable rates."

FCC Chairman Kevin Martin

"...to provide subsidies so that access at an affordable price is provided in areas where access would not be provided at an affordable price without the subsidies."

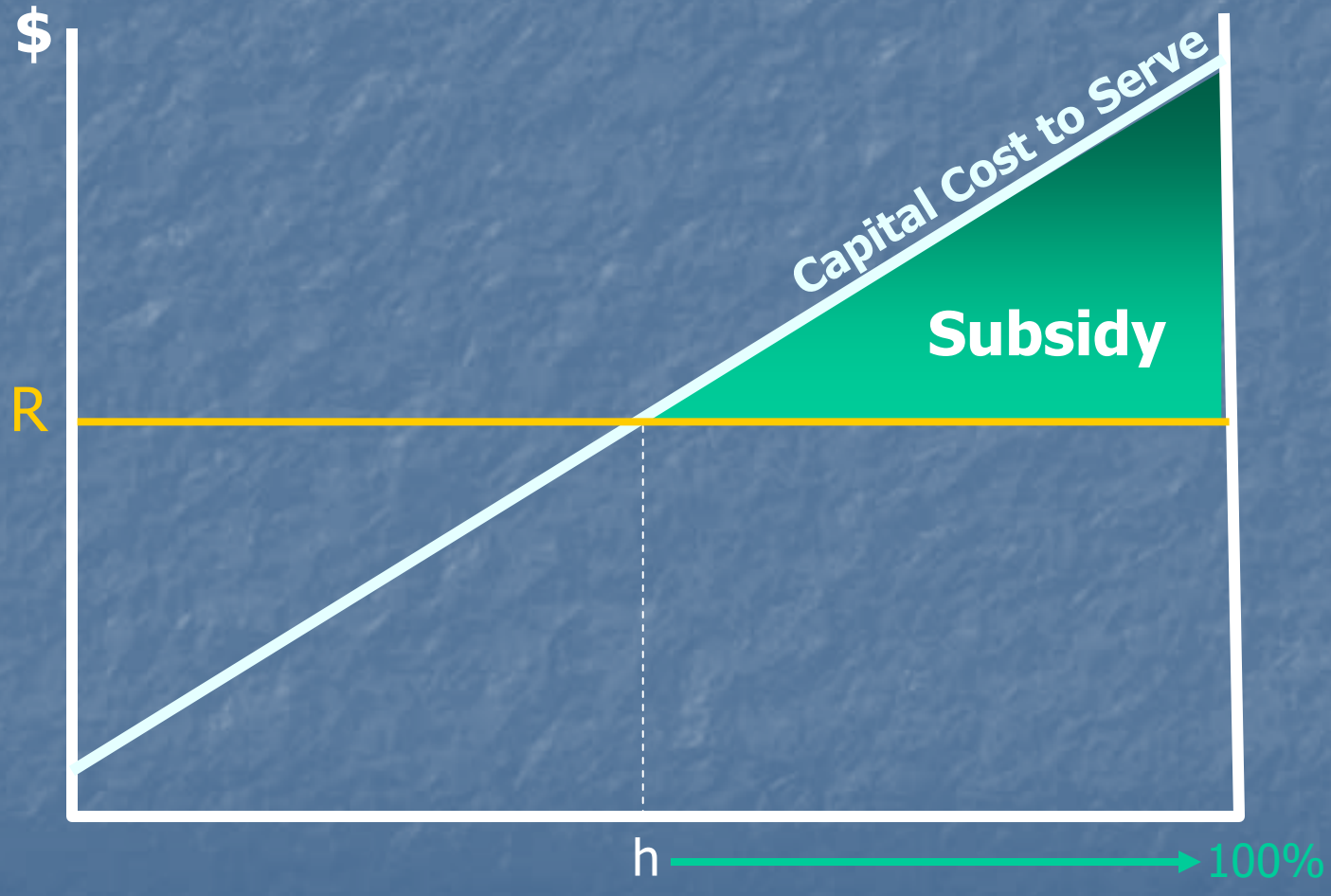
George Ford, Phoenix Center

Why Have Universal Service?



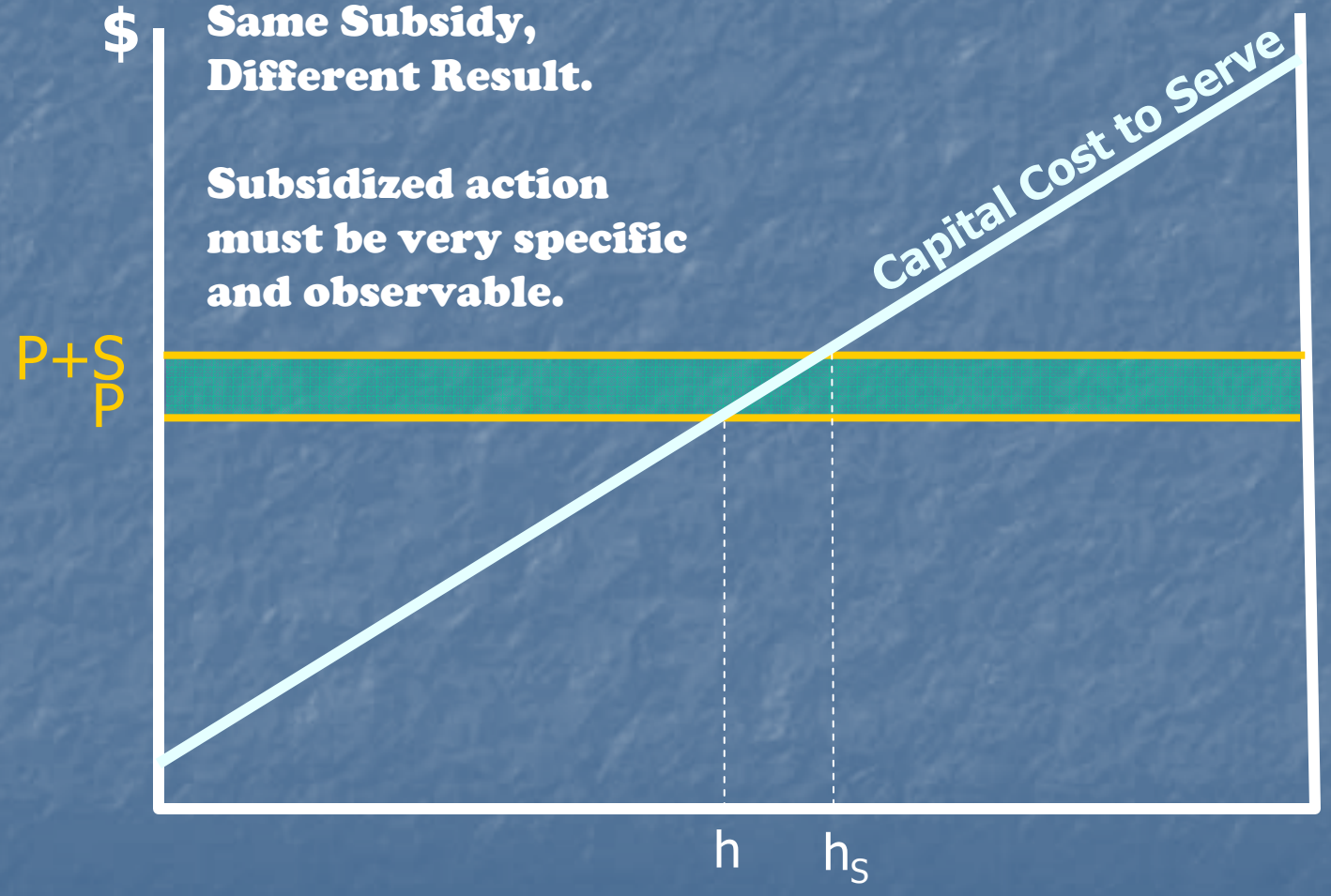
R = Net Revenue

How do we subsidize? Carefully

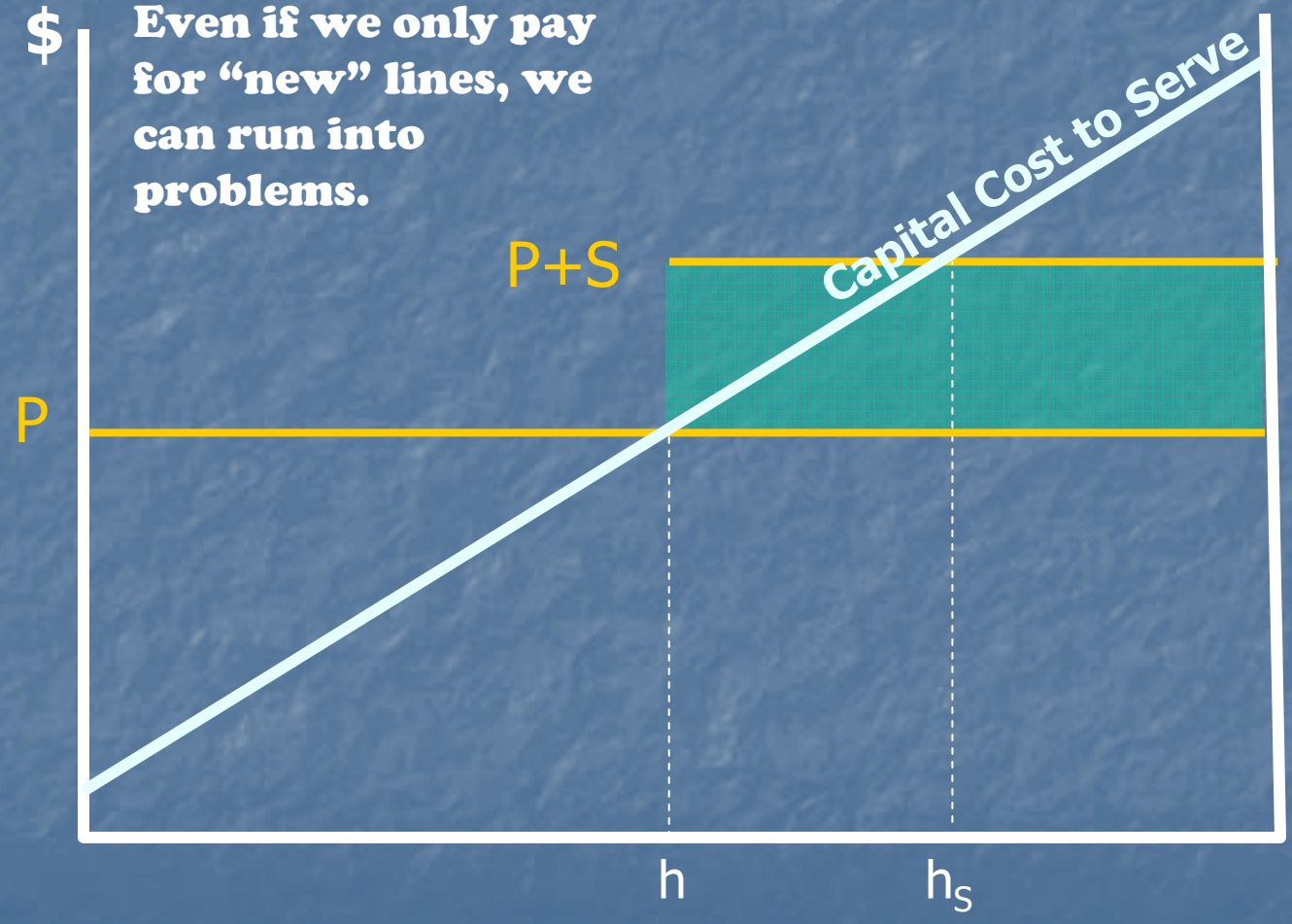


R = Net Revenue

How do we subsidize? Uncarefully



How do we subsidize? Uncarefully



Let's Talk About Bidding

Competitive bidding is just a component of a franchise bidding scheme.

The idea of franchise bidding was formally proposed by Edwin Chadwick, an English economist, in the mid-nineteenth century.

Franchise bidding has been used widely in utility or utility-type industries (such as CATV).

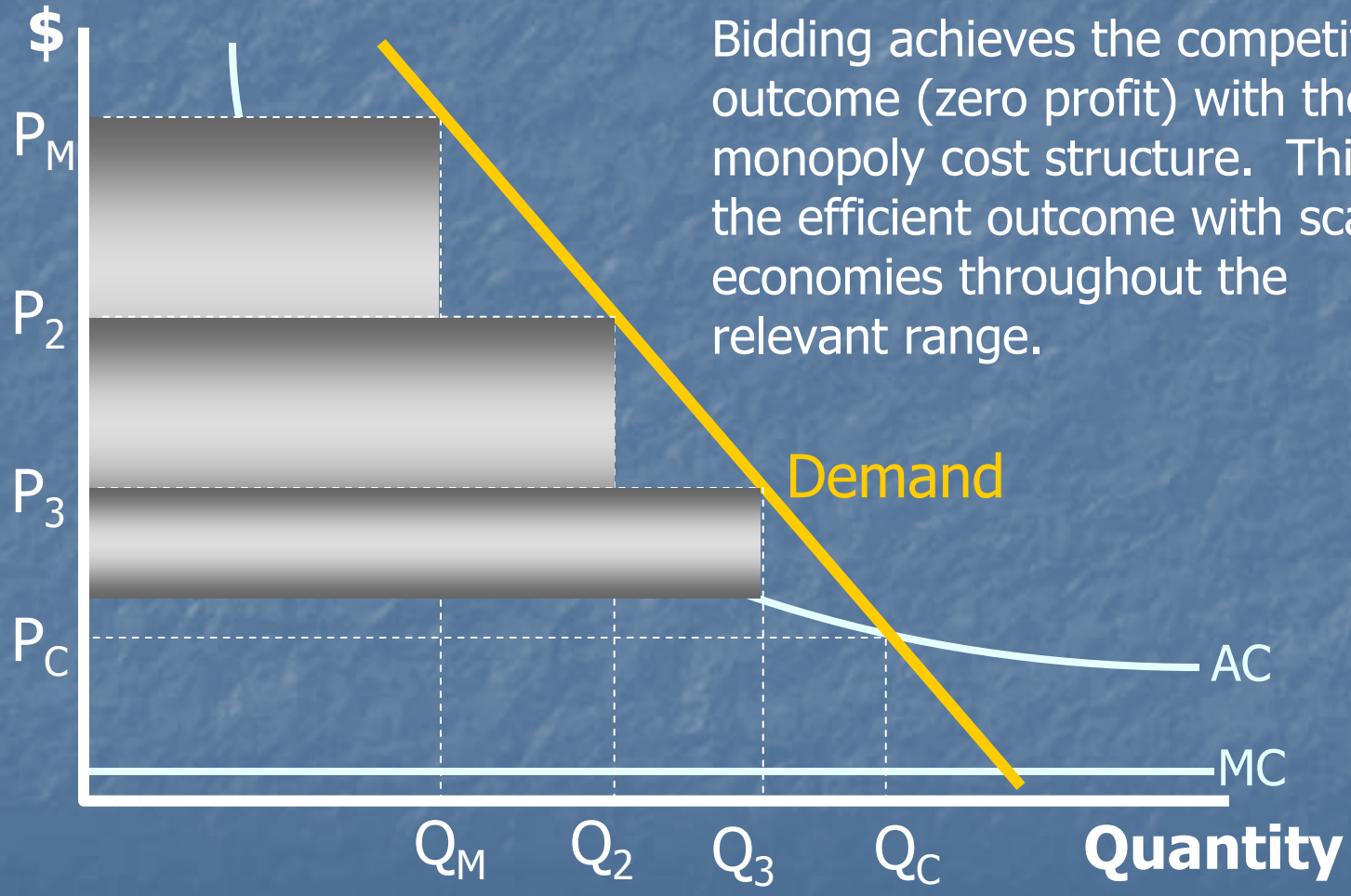
Franchise Bidding

Franchise Bidding is a competition among firms for the exclusive right to serve.

> ***The right to offer service in a market is "auctioned off" to the firm willing to offer fixed level of service at the lowest price.***

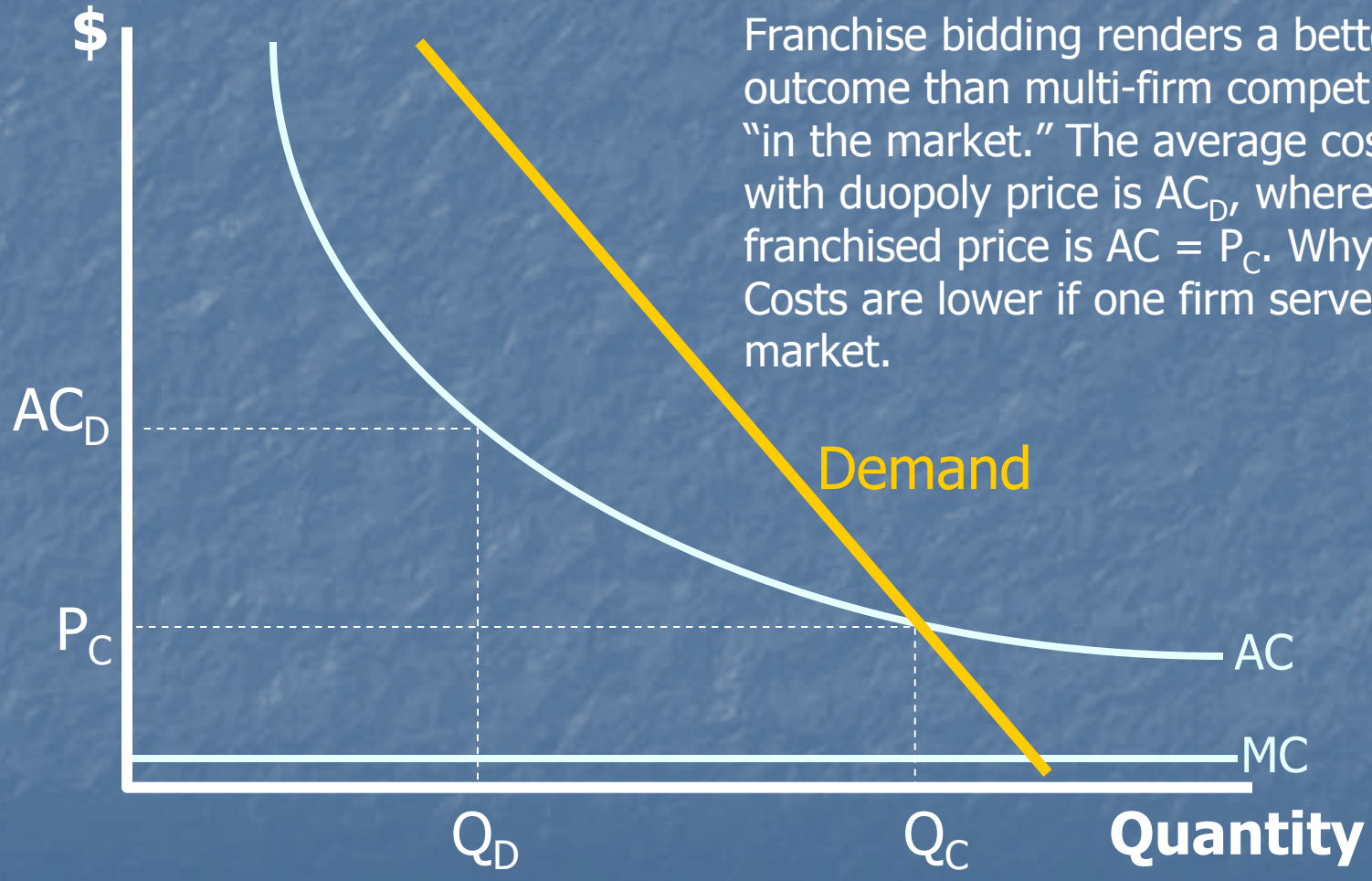
Franchise bidding may be desirable when it is most efficient to have a single firm serve the market, yet there can be many bidders for that right.

Franchise Bidding:
The Idea



Bidding achieves the competitive outcome (zero profit) with the monopoly cost structure. This is the efficient outcome with scale economies throughout the relevant range.

Franchise Bidding:
The Idea



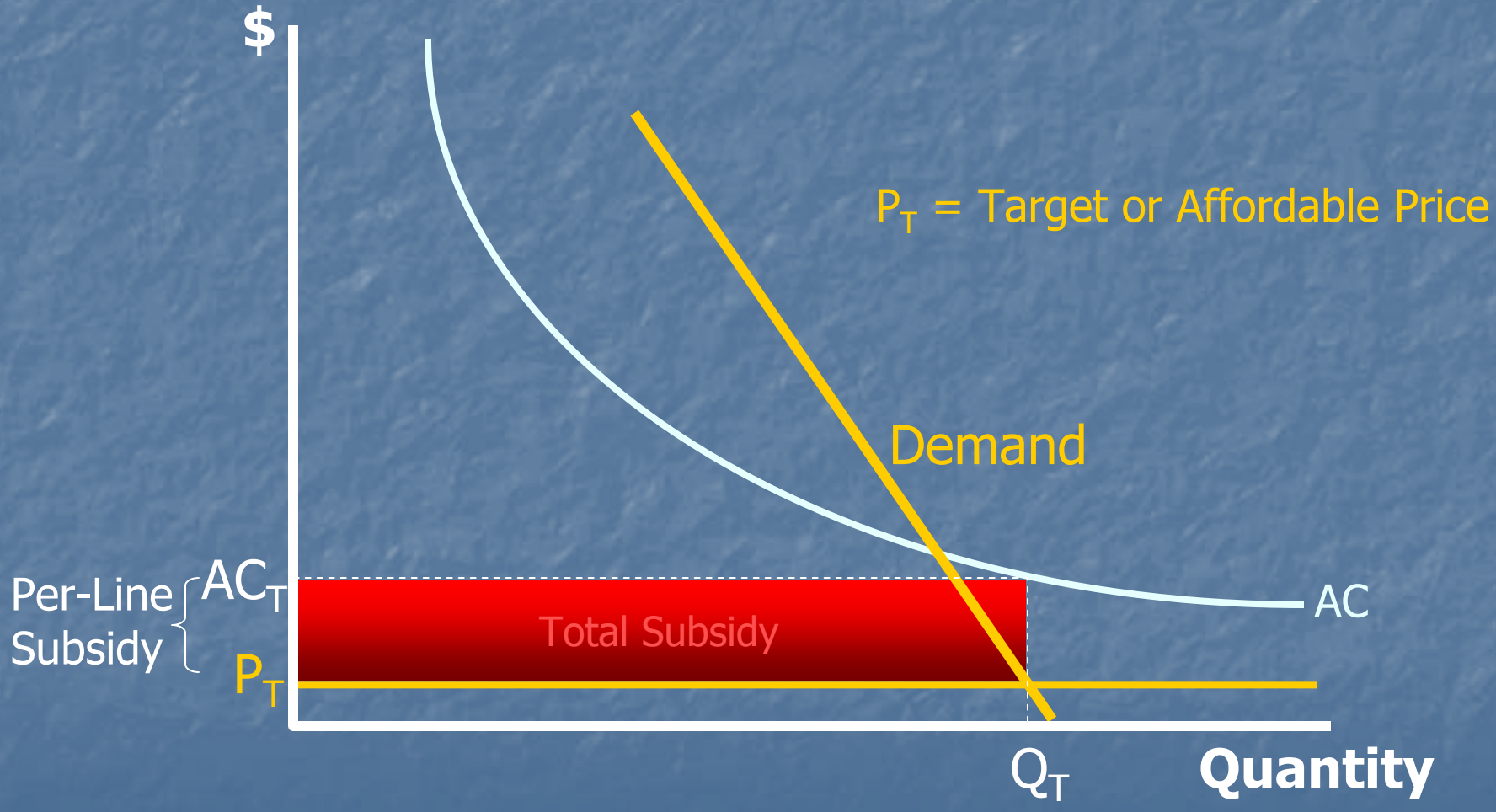
Franchise bidding renders a better outcome than multi-firm competition "in the market." The average cost with duopoly price is AC_D, where the franchised price is $AC = P_C$. Why? Costs are lower if one firm serves the market.

Franchise Bidding with Subsidy

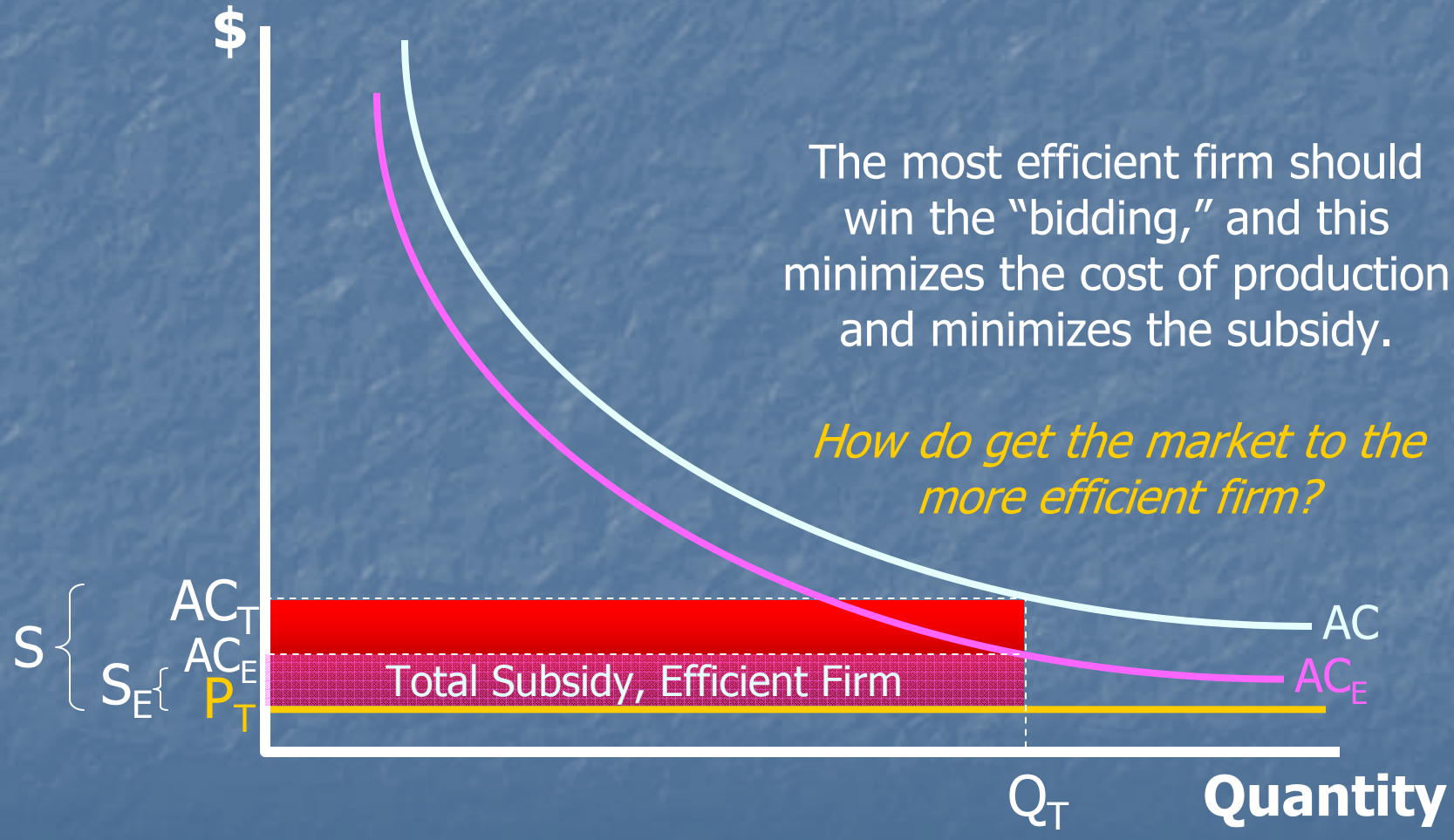
Franchise Bidding is different when a subsidy is involved.

The bid price (average cost) is above the "affordable" or target price. Thus, a subsidy is required.

Franchise Bidding:
With Subsidy



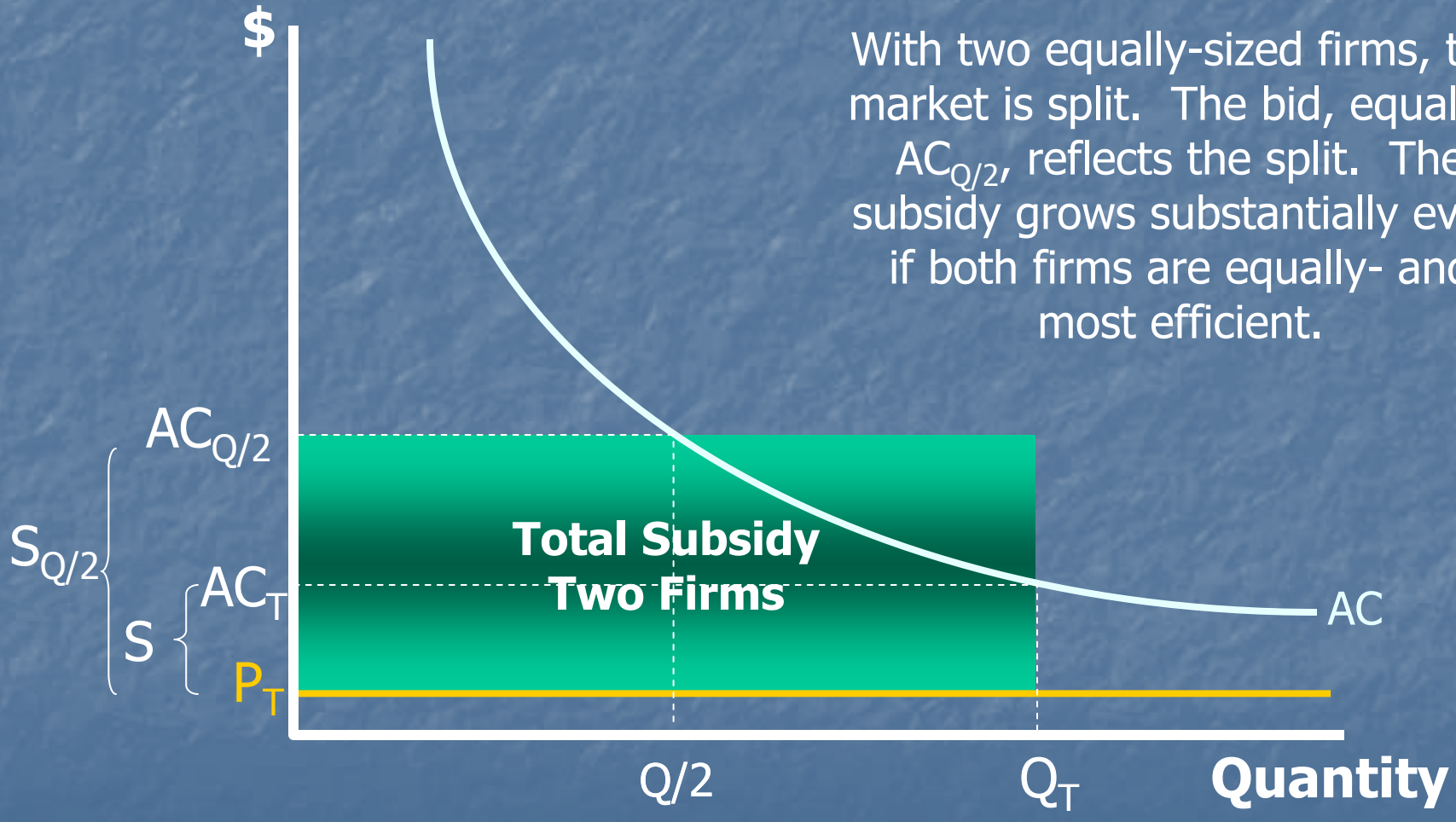
Franchise Bidding:
With Subsidy, Different Efficiency



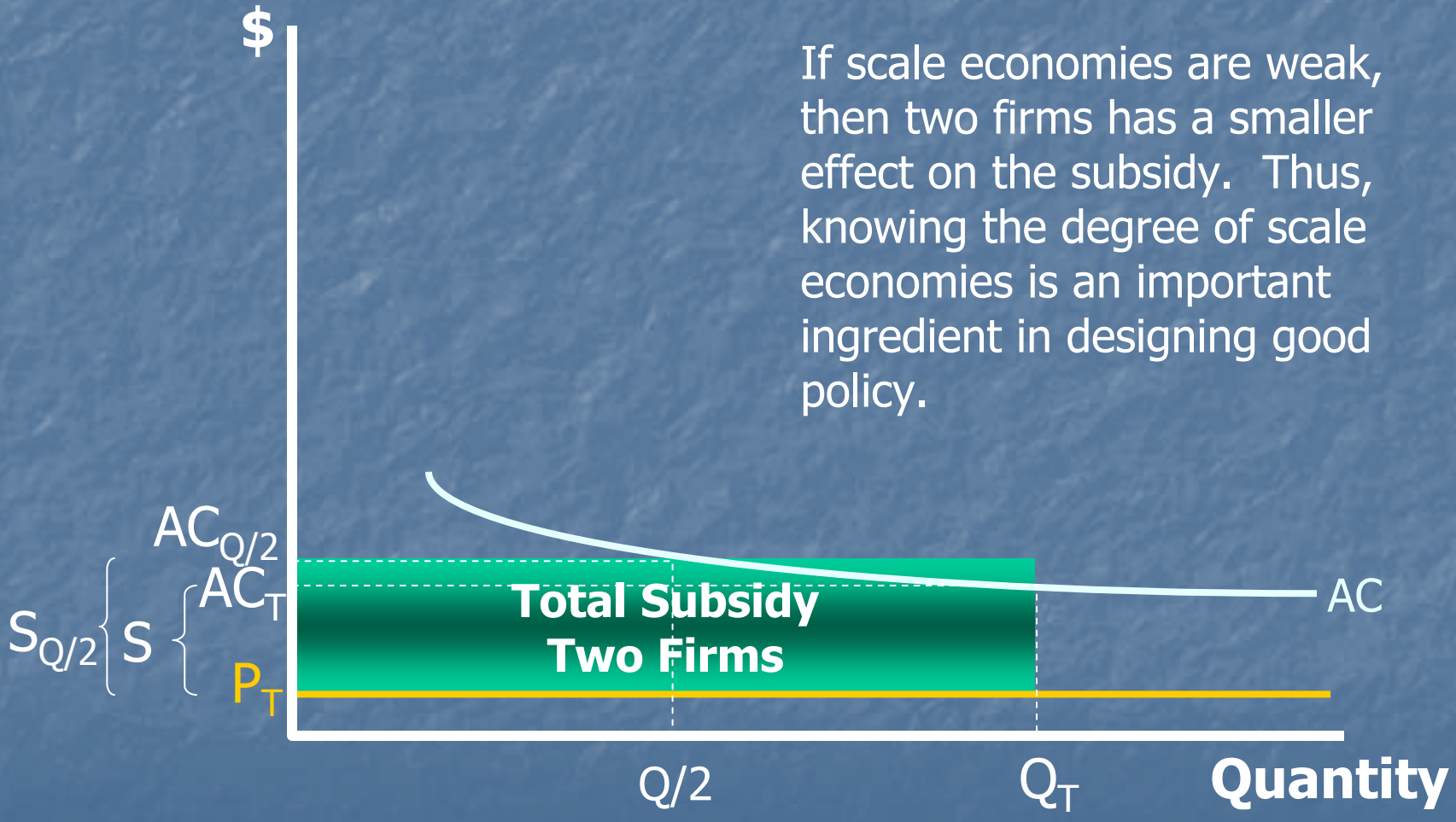
The efficient subsidy

The efficient subsidy should be based on the minimum economic cost of providing the relevant set of access services.

Subsidy Bidding:
Two Firms

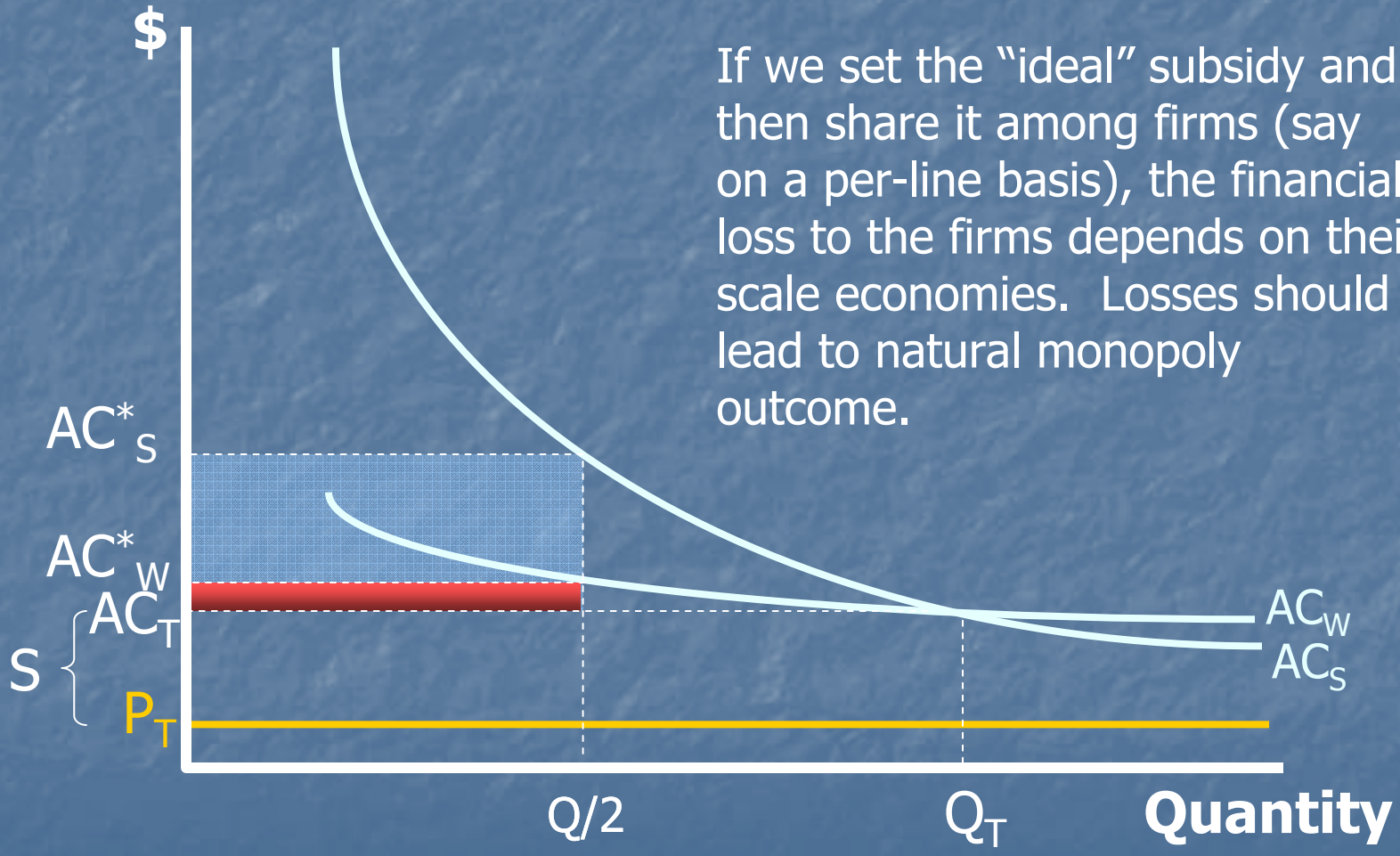


Subsidy Bidding:
Two Firms, Weak Scale Economies



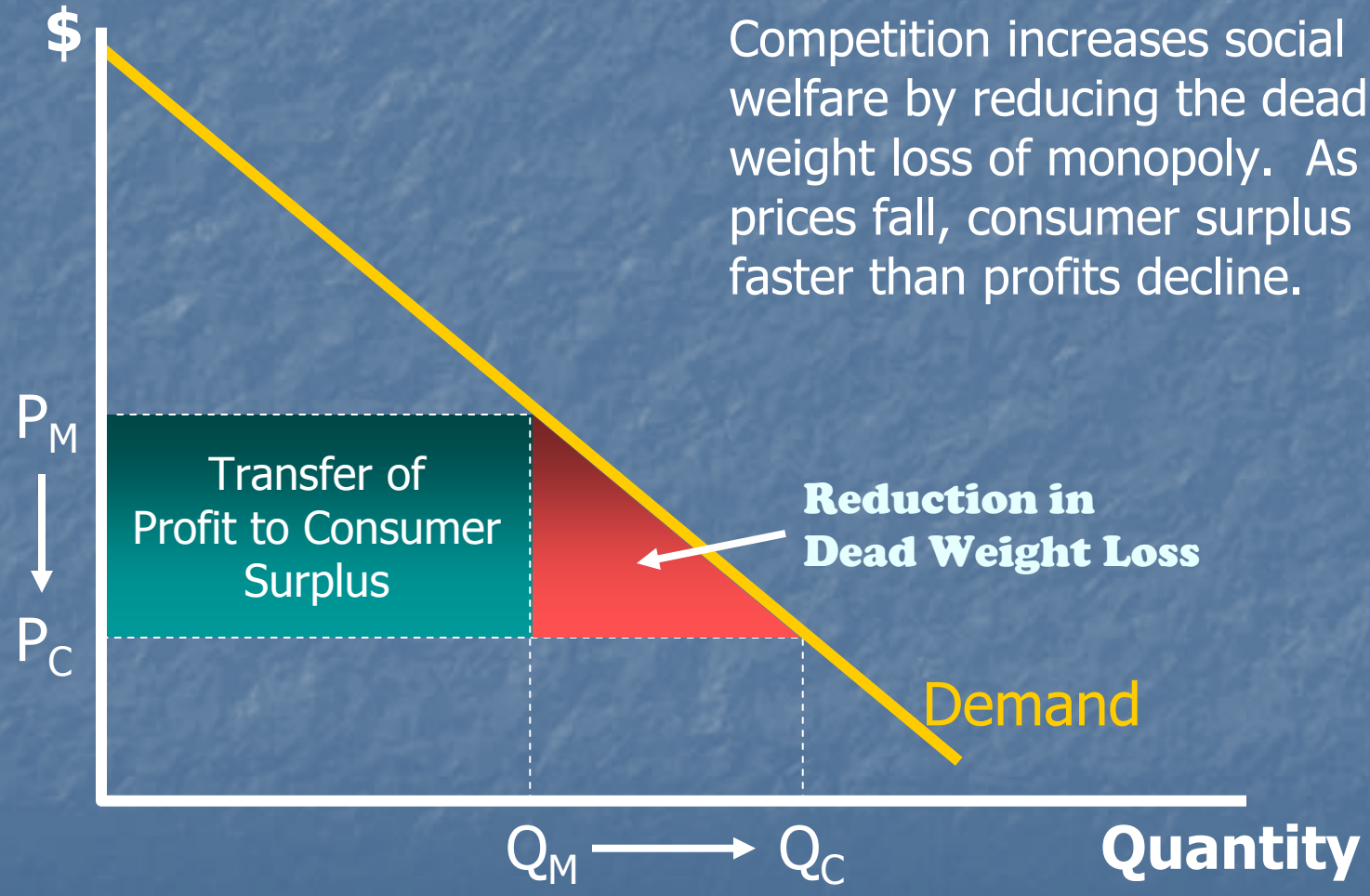
If scale economies are weak, then two firms has a smaller effect on the subsidy. Thus, knowing the degree of scale economies is an important ingredient in designing good policy.

Subsidy Bidding:
Ideal Subsidy with Two Firms



If we set the "ideal" subsidy and then share it among firms (say on a per-line basis), the financial loss to the firms depends on their scale economies. Losses should lead to natural monopoly outcome.

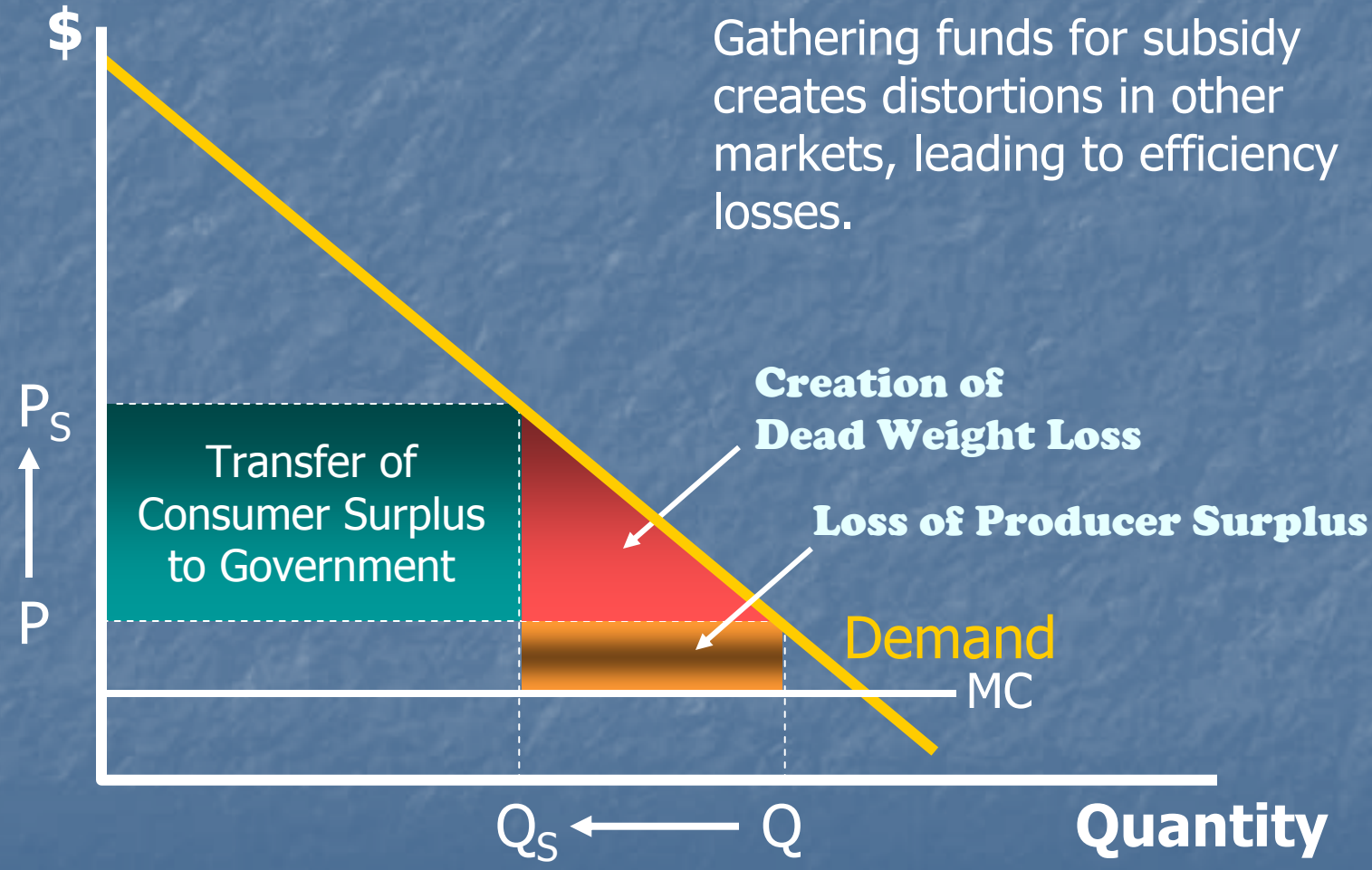
Benefits of Competition



Competition increases social welfare by reducing the dead weight loss of monopoly. As prices fall, consumer surplus rises faster than profits decline.

Cost of Subsidies

Gathering funds for subsidy creates distortions in other markets, leading to efficiency losses.



Let's make soup

Competitive bidding is implemented. The zero profit equilibrium is obtained, so that:

$$P_T - AC + S = 0$$

P_T = Target (regulated) Price
AC = Average Cost of service
S = Subsidy

Assume
$P_T < AC$
so
$S > 0$

Let's make soup

Franchise bidding (auction) is implemented. The zero profit equilibrium is obtained, so that:

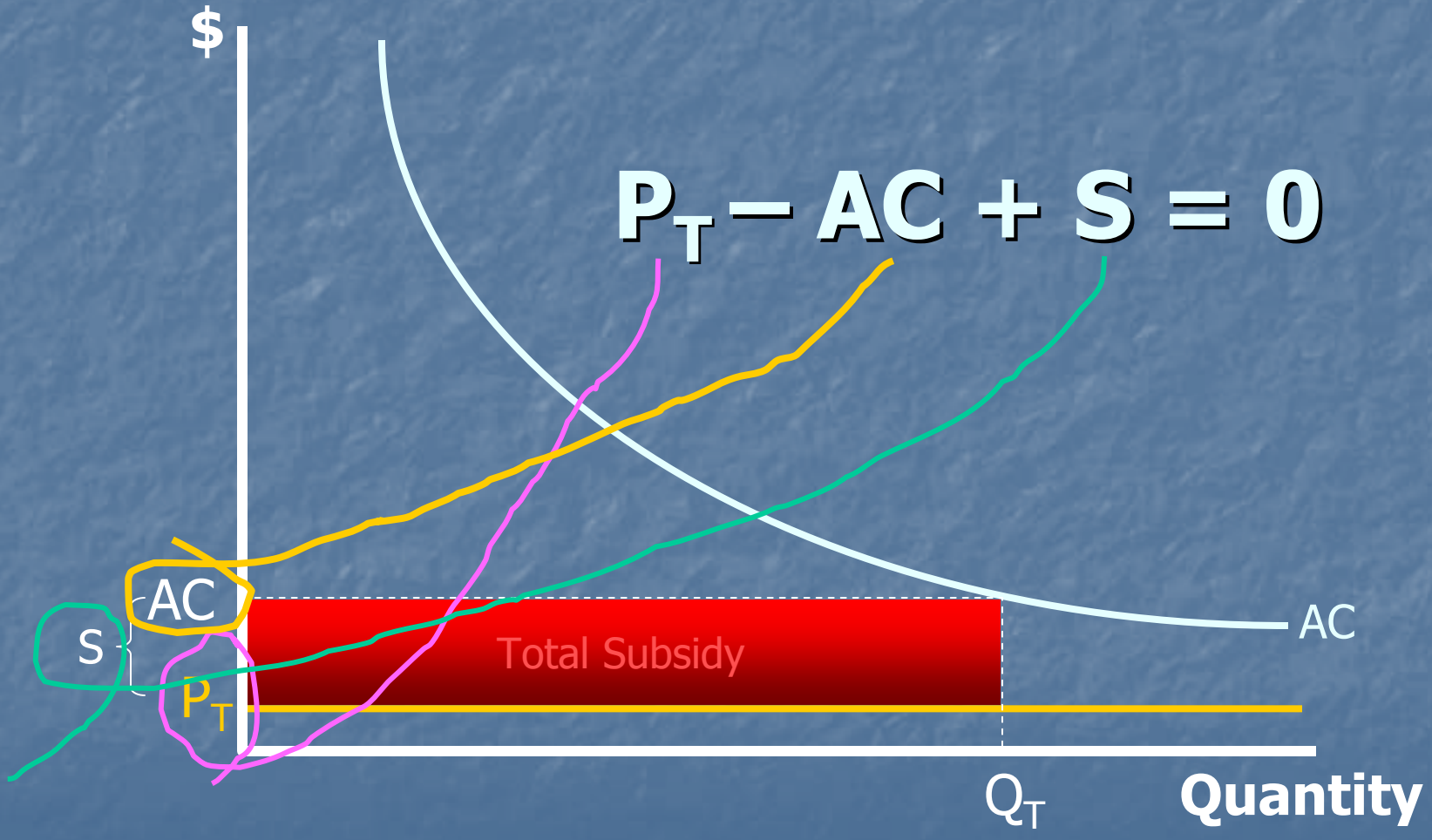
$$P_T - AC + S = 0$$

$20

$30

Winning Bid Is $10

Franchise Bidding:
With Subsidy



Let's make soup

Let's make it more realistic and interesting by assuming the firm sells not only basic access, but ancillary/vertical services with profit margin M that falls with competition, so that:

$$P_T + M - AC + S = 0$$

P_T = Target (regulated) Price
AC = Average Cost of service
M = Profits from other services sold to consumer
S = Subsidy

Let's make soup

What are the relationships of interest?

$$P_T + M - AC + S = 0$$

$\Delta S/\Delta P_T < 0$

$\Delta S/\Delta M < 0$

$\Delta S/\Delta AC > 0$

$\Delta S/\Delta N > 0$

Let N be the number of entrants:

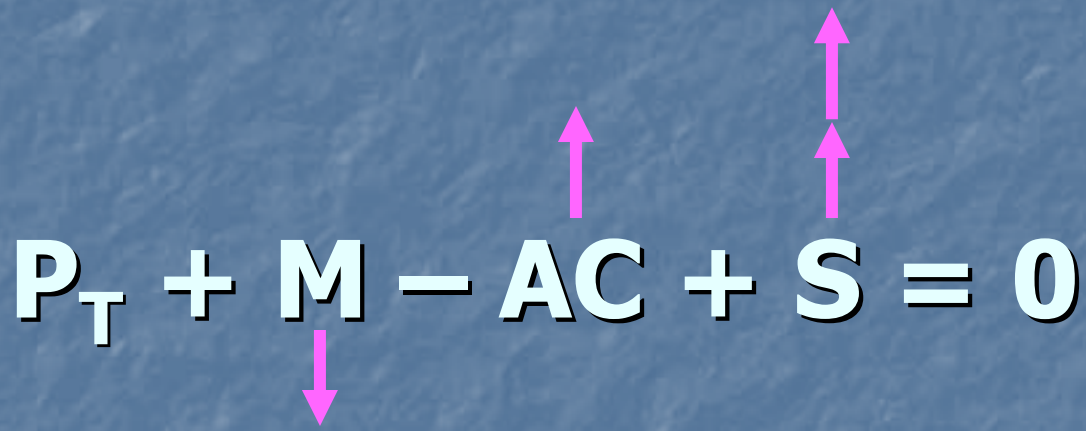
$\Delta M/\Delta N < 0$

$\Delta AC/\Delta N > 0$

Competition increases the subsidy!

Let's make soup

Consider a case where we use bidding and allow multiple winners **(N>1).** ***What happens relative to an exclusive winner?***



Competition in subsidized markets increases the amount of subsidy both through margin declines and cost increases.

What's competition worth?

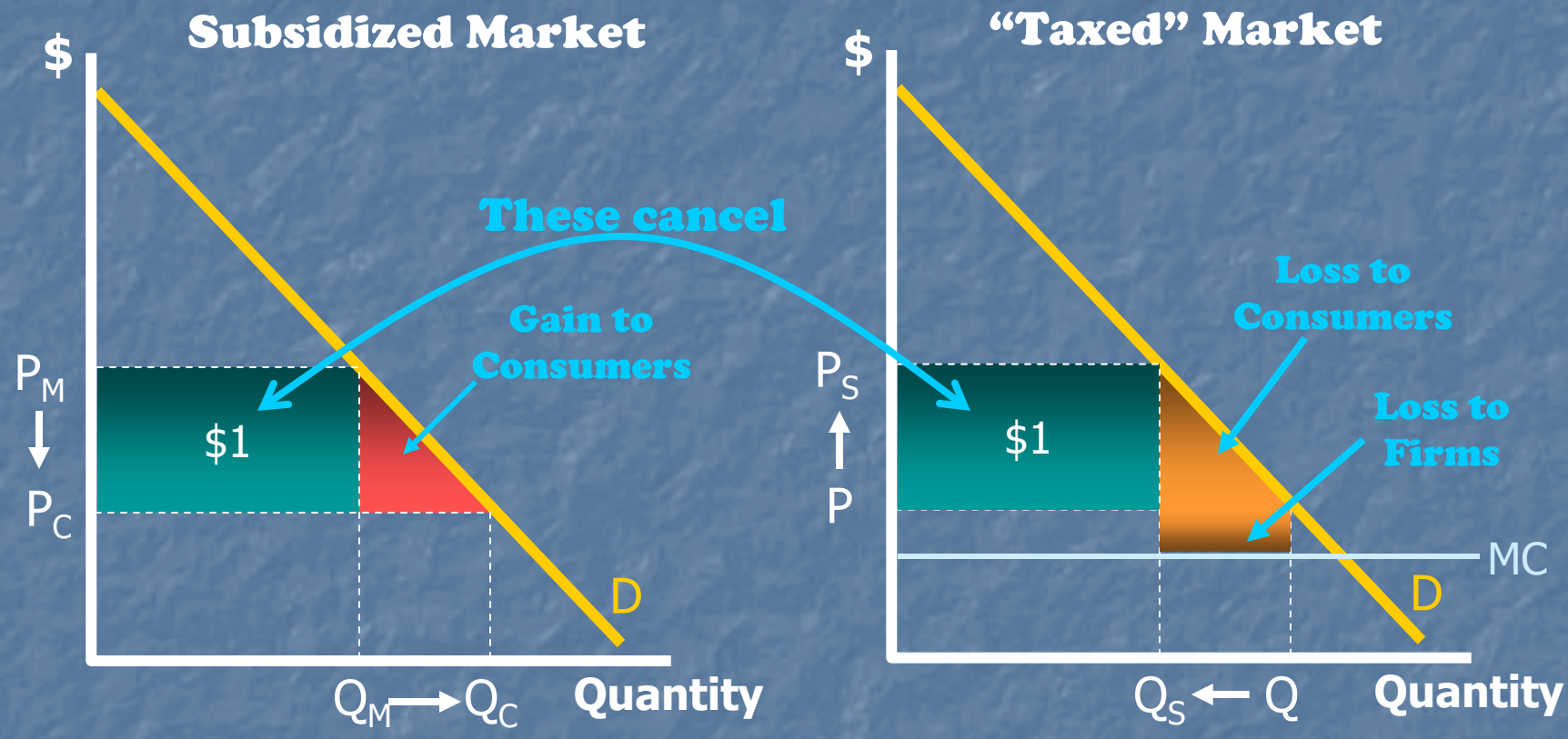
To consider what competition is worth, let's assume AC is constant (not rising with the number of firms).

Subsidy rises, harming consumers.

$$P_T + M - AC + S = 0$$

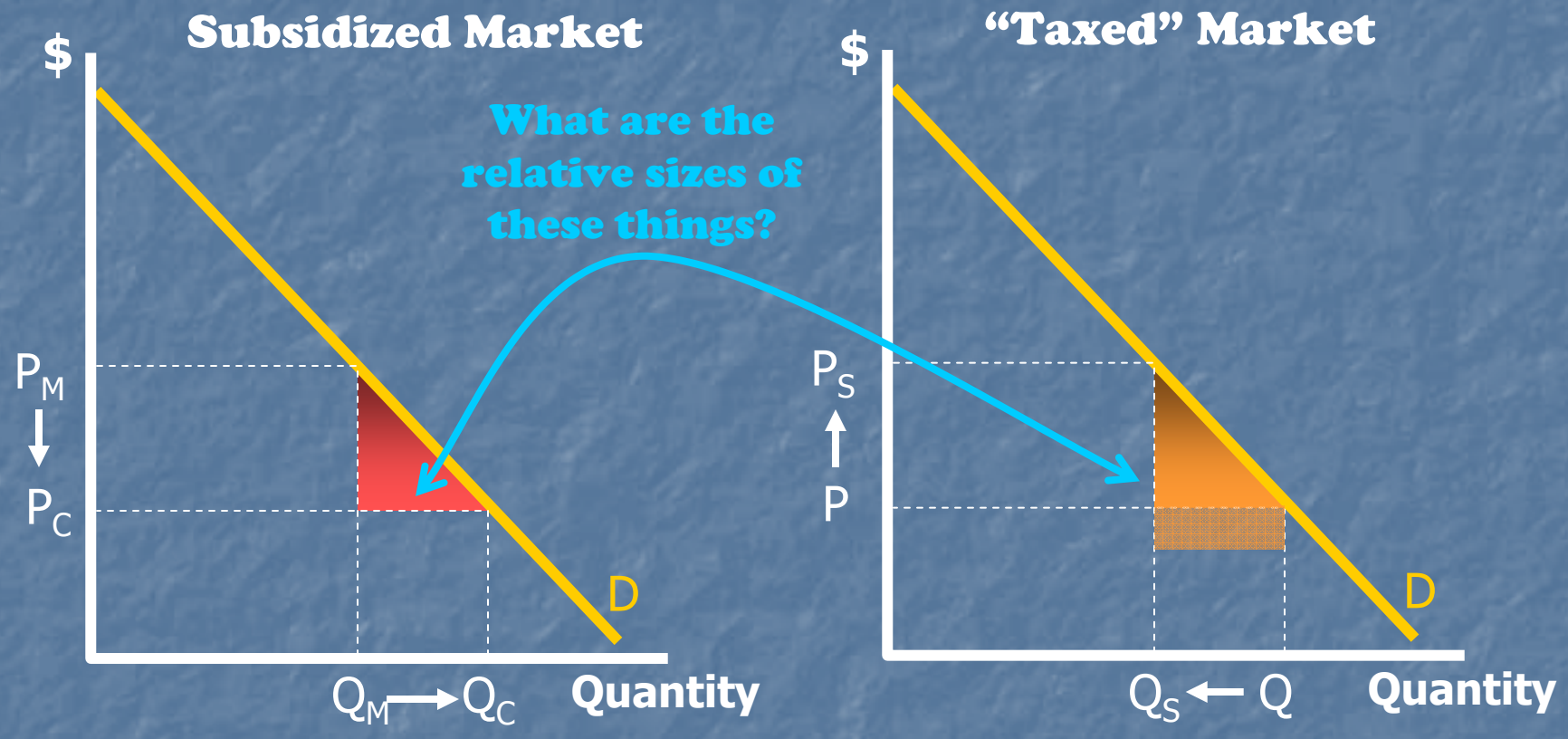
Margins fall, benefiting consumers.

Competition and Subsidies



This is not the usual transfer from firms to consumers as a result of competition, it is a transfer from consumers in one market to consumers (and producers) in another.

Competition and Subsidies



For telecom services, the deadweight change from competition is probably around $0.05 per dollar of price cut (assuming elasticity of demand is -1). For the taxed service (interstate services), the loss is about $0.65 per dollar of subsidy.*

* J. Hausman, Taxation by Telecommunications Regulation, NBER Working Paper W6260 (1997).

What's competition worth?

If we need $1 of subsidy due to a $1 margin decline, then we need $1 of subsidy collection. Thus, there are distortions created (higher "taxes") for the distortions eliminated (lower margins). Rough estimates suggests a $1 price decline in the subsidized market generates $0.05 of additional surplus, but costs $0.65 of surplus in collection on average. At the margin, collection costs are $1.25 per $1 of subsidy.

With franchised bidding, competition in subsidized markets is likely welfare reducing, even if we ignore the undesirable cost impacts of competition. $1 competitive benefit costs $1.60.

What's competition worth?

If we need $1 of subsidy due to a $1 margin decline, then we need $1 of subsidy collection. Thus, there are distortions created (higher "taxes") for the distortions eliminated (lower margins). Rough estimates suggests a $1 price decline in the subsidized market generates $0.05 of additional surplus, but costs $0.65 of surplus in collection on average. At the margin, collection costs are $1.25 per $1 of subsidy.

The subsidy payout scheme should be determined jointly with the subsidy collection scheme (or at least considered).

What's competition worth?

In fact, AC will rise, indicating competition is likely a net loser in social welfare terms.

$$P_T + M - AC + S = 0$$

Competition further lowers social welfare by raising costs and, thus, increasing subsidies. Just like with competition, $1 in higher costs requires $1.60 in welfare to collect.

Conclusion

Competitive bidding schemes that allow competition in the subsidized markets are likely welfare reducing and should be avoided.

Some Caveats

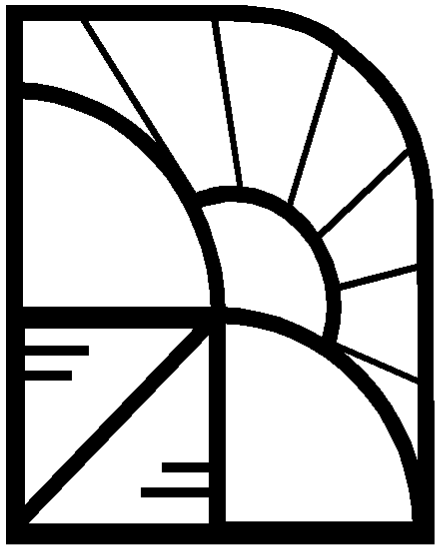
I've assumed that competitive bidding renders a zero profit equilibrium, like it should in theory (but may not in practice).

I've assumed competition only affects prices.

Administrative costs are ignored.

Strategic bidding is absent.

I've assumed any subsidy cap is not binding.



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