

Principles of Economics

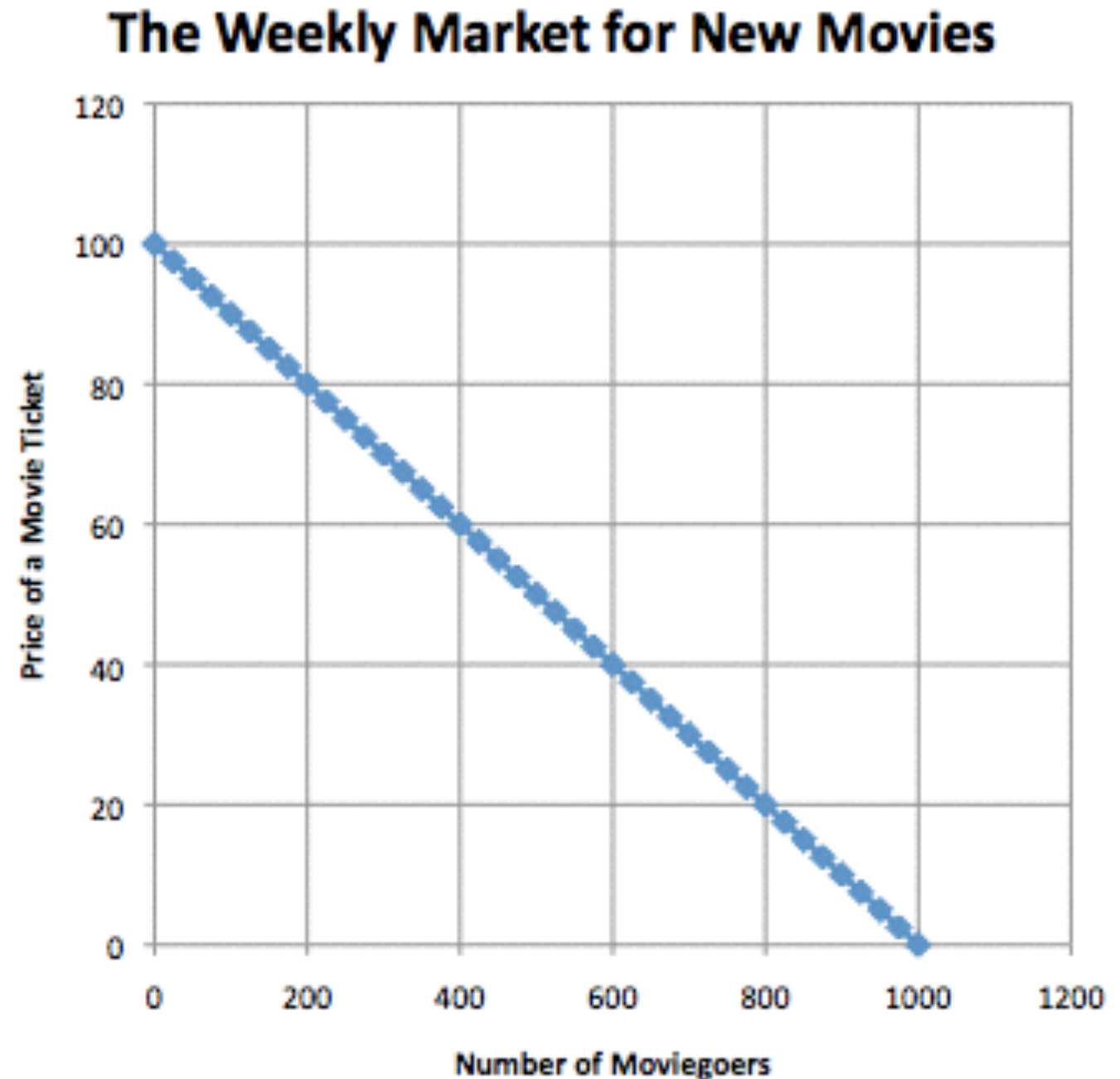
When Competitive Markets Cannot
Work Optimally

Monopoly

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U.C. Berkeley

The Set-Up...

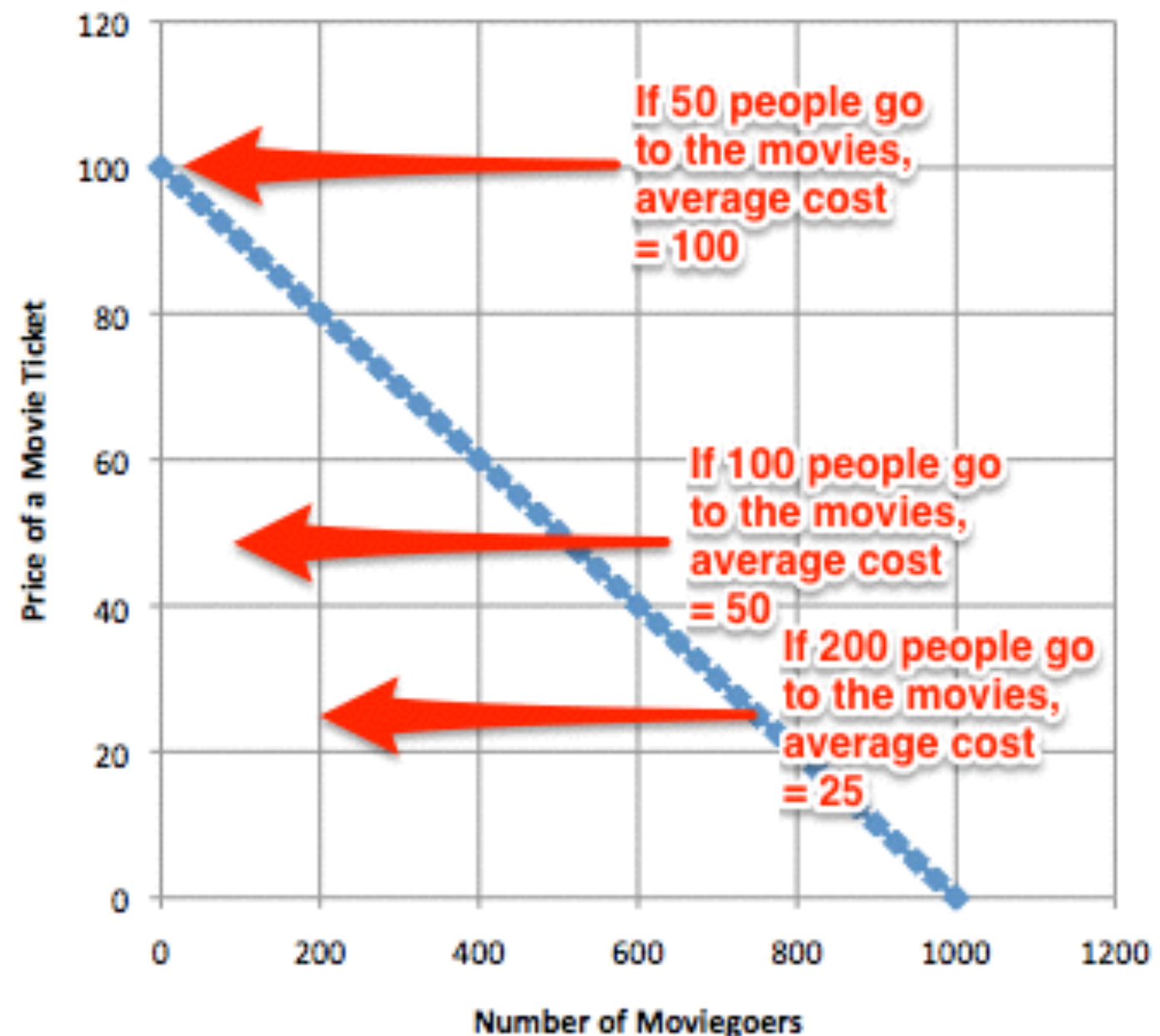
- Every weekend new movie(s) are released
- Gotta release new movies every weekend!
 - The demand for new movies is different from the demand for old movies
- Demand for new movies:
 $P_d = 100 - 0.2 \times Q$



The Set-Up... II

- Every weekend new movie(s) are released
- Gotta release new movies every weekend!
 - The demand for new movies is different from the demand for old movies
- Demand for new movies: $P_d = 100 - 0.1 \times Q$
- Each new movie costs 5000 to make
 - Those are the *only* costs of making a movie
- People don't care which new movie they see
- Ample space in theaters

The Weekly Market for New Movies



First-Best with Non-Rivalry

- Make movies free
- The societal cost of adding an extra moviegoer is zero—the movie is already made
- There is no burden imposed on the rest of society by adding another moviegoer
- Since there is no burden imposed on society, there is no reason to make anybody who wants to go think twice before going
- There is no reason to have moviegoers pay any price at all...

Non-Rival Commodities Want to Be Free!!!!

- But there is an obvious problem...
- What is the obvious problem here?
- And there is an obvious solution: this is what taxes are for
- Public provision of non-rival goods: NIH, DoD, DARPA, UCB, Fire Departments. Police Departments, Roads and bridges (unless and until they become *congested*), Etc.

But What If We Don't Nationalize the Movie Industry and Give It Away?

- But we: don't trust bureaucracy, want to spur innovation, are in the pocket of the Hollywood lobby
- New movies are non-rival: you make it, and then can show it to as many people as are willing to pay that weekend
 - For no additional cost
- But you can charge a price
 - A ticket-taker
 - The first-run movie is excludible
- Consider the case of one new movie produced each week...

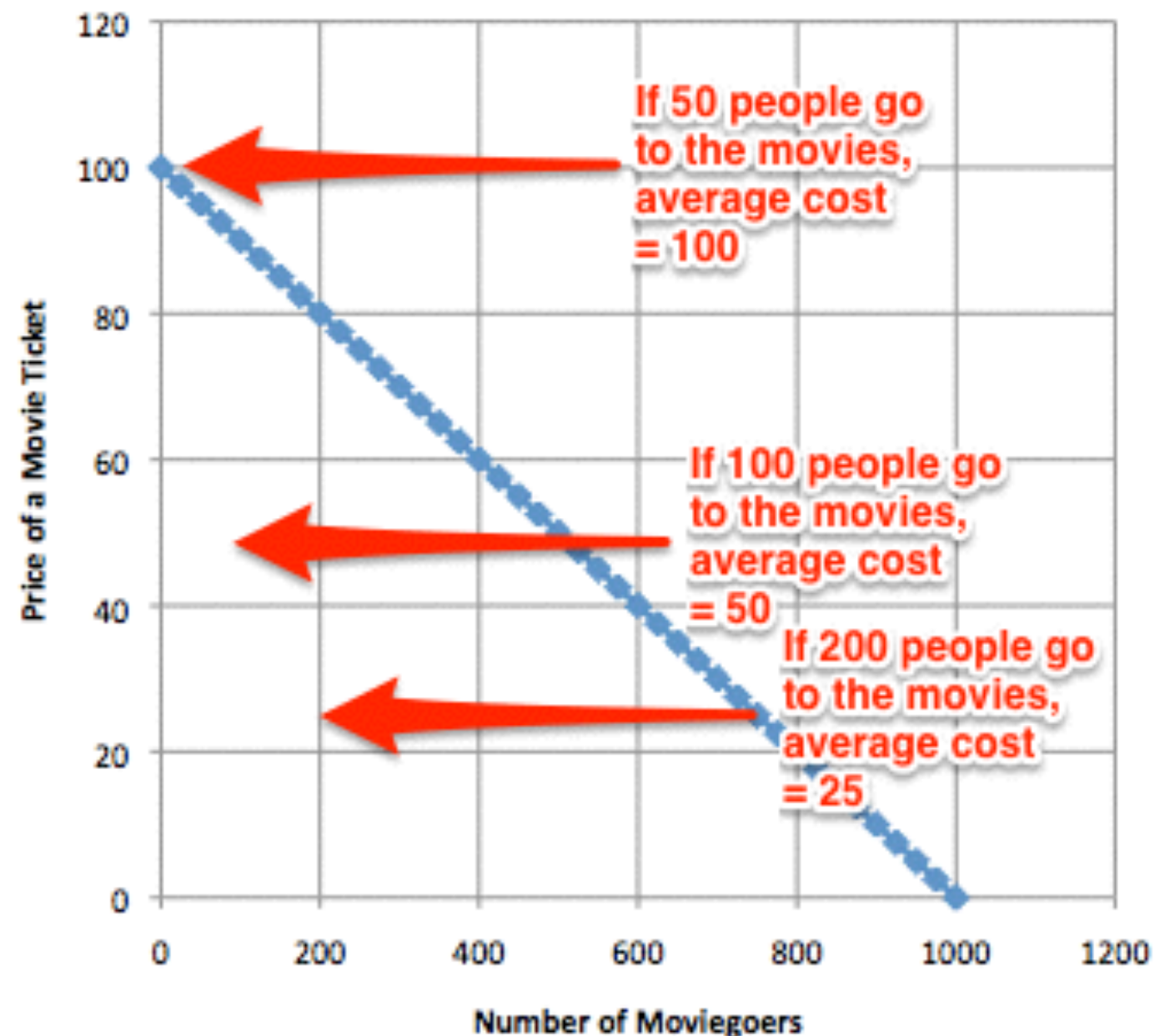
A Monopoly Movie Industry

- New movies are non-rival: you make it, and then can show it to as many people as are willing to pay that weekend for no additional cost
- But you can charge a price
- Mono = one, poly = seller. One seller. Spent 5000 to make this week's movie.

What Does a Monopolist Do?

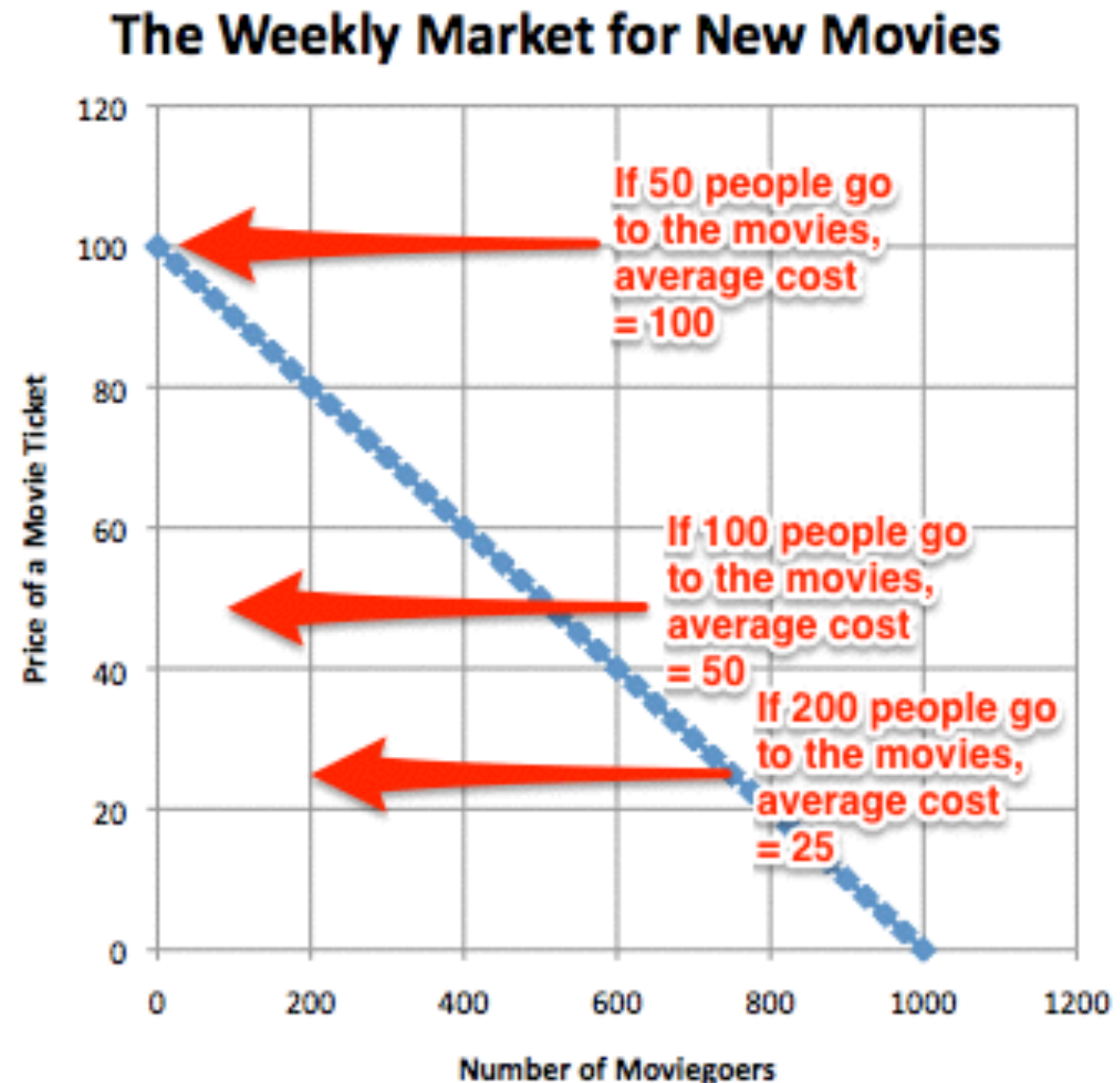
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The Weekly Market for New Movies



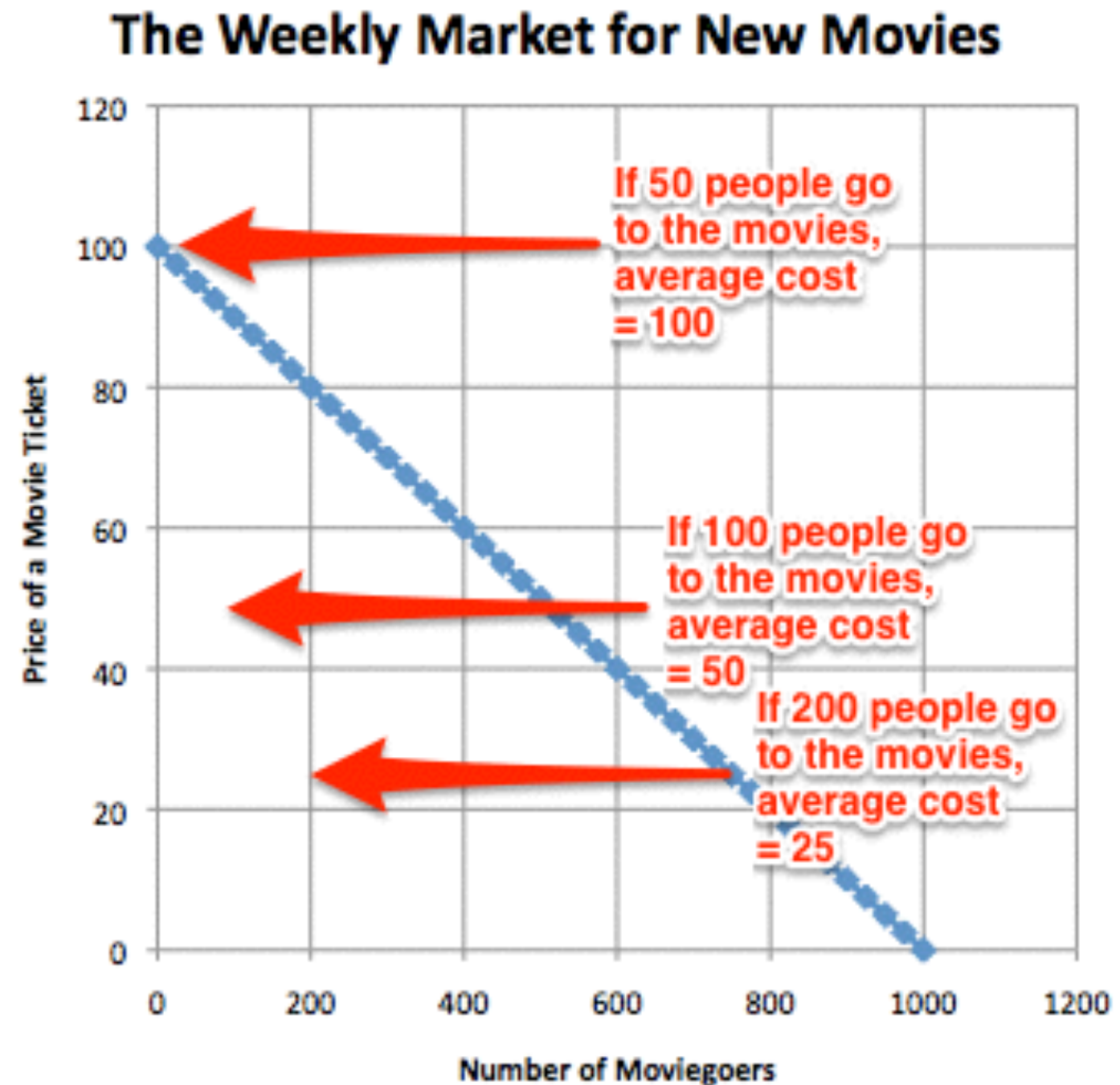
What Does a Monopolist Do? II

- Spent 5000 to make this week's movie...
- Options:
 - Give it away...
 - Lose 5000



What Does a Monopolist Do? III

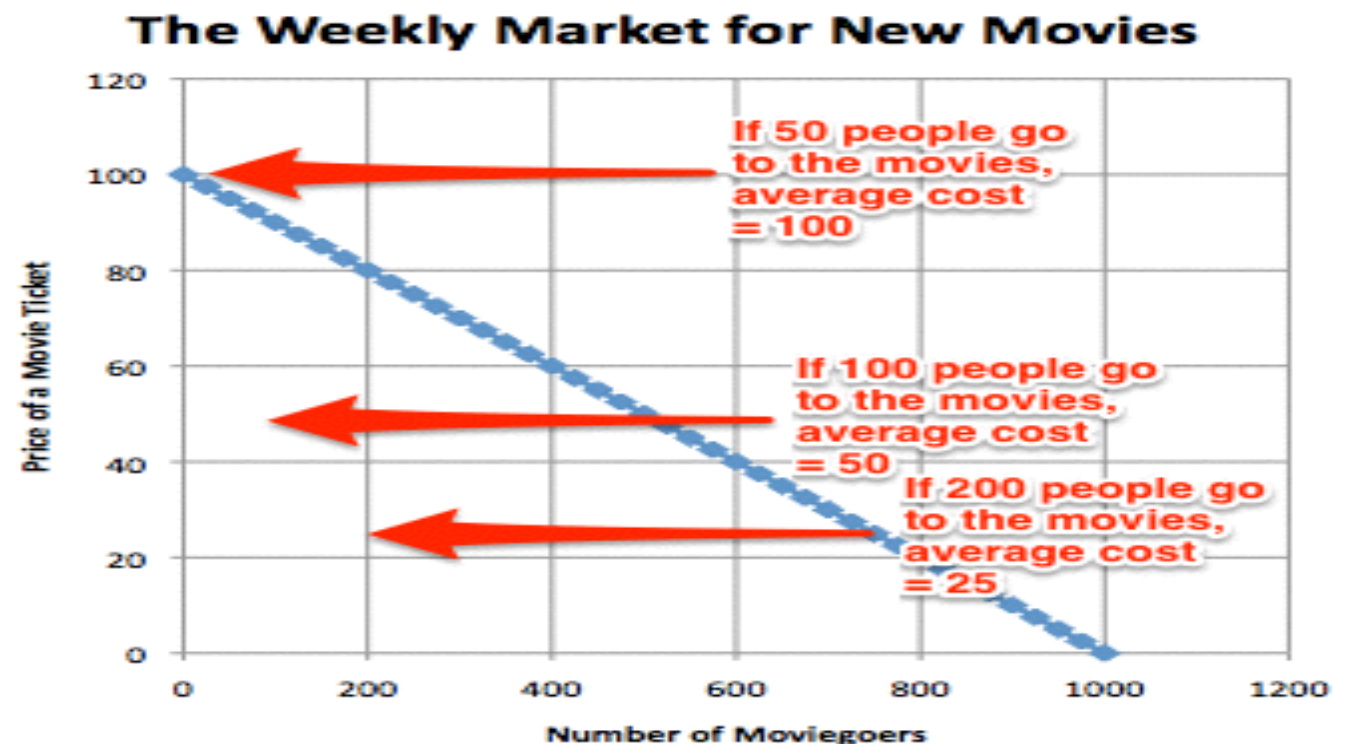
- Spent 5000 to make this week's movie...
- Options:
 - Give it away...
 - Lose 5000
- Charge 100...
 - No one comes: lose 5000



What Does a Monopolist Do? IV

- Spent 5000 to make this week's movie...
- Options:
 - Give it away...
 - Lose 5000
 - Charge 100...
 - No one comes: lose 5000
 - Charge 80
 - 200 people come: make 11000

Number of Moviegoers	Price of Movie Ticket	Profit
0	100.00	-5000
200	80.00	11000
400	60.00	19000
600	40.00	19000
800	20.00	11000
1000	0.00	-5000

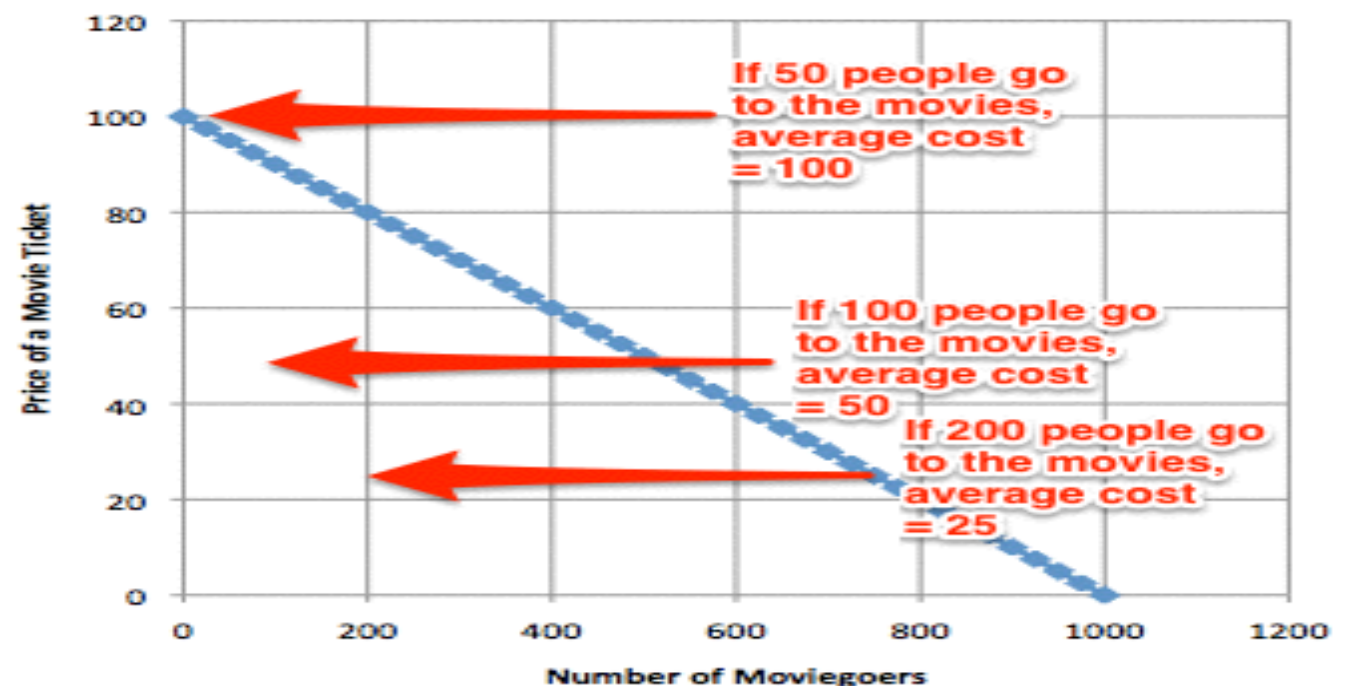


What Is This Monopolist's Profit Function?

- Total Revenue:
 - $TR = P_d \times Q_d$
- Total Cost = Fixed Cost
 - $TC = FC = 5000$
- Profit = $TR - TC$

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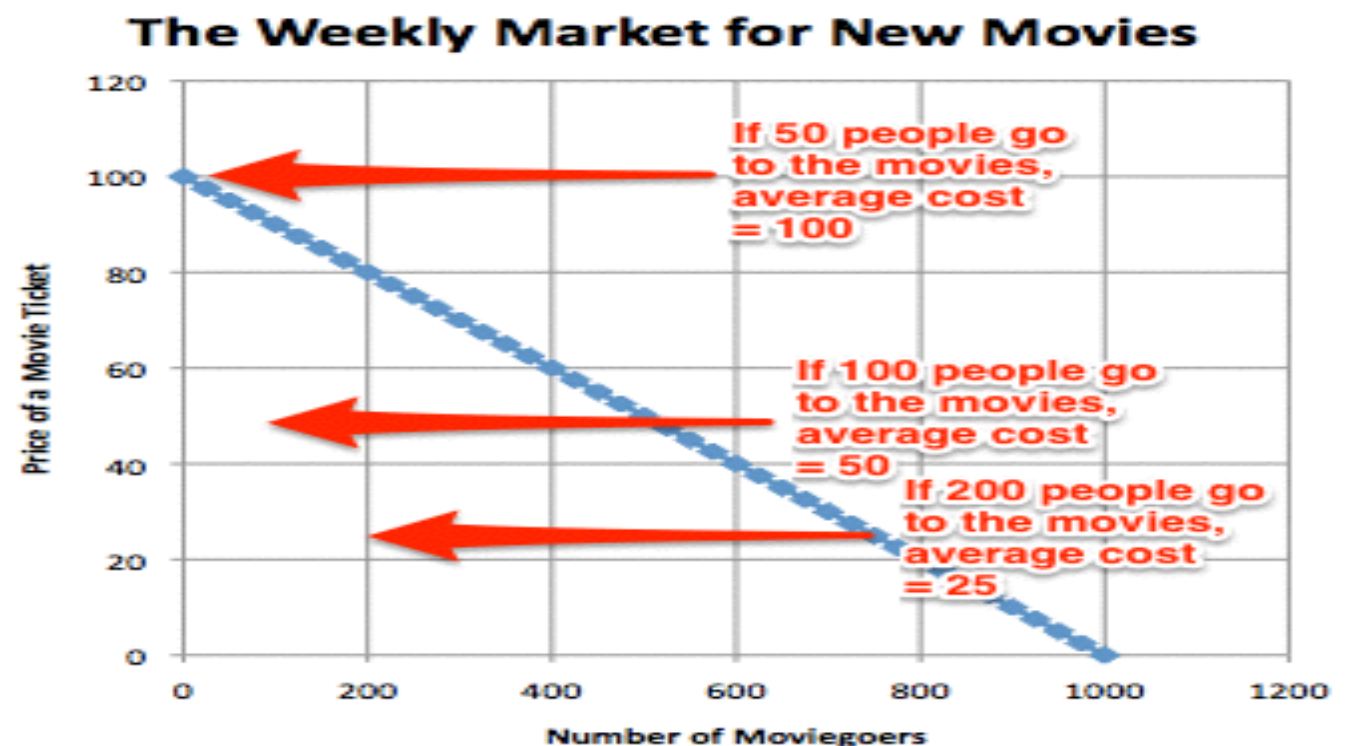
The Weekly Market for New Movies



What Is This Monopolist's Profit Function? II

- Total Revenue:
 - $TR = P_d \times Q_d$
 - $TR = (P_{d0} - aQ) \times Q$
- Total Cost = Fixed Cost
 - $TC = FC = 5000$
- Profit = $TR - TC$
- Profit = $(P_{d0} - aQ) \times Q - FC$

Number of Moviegoers	Price of Movie Ticket	Profit
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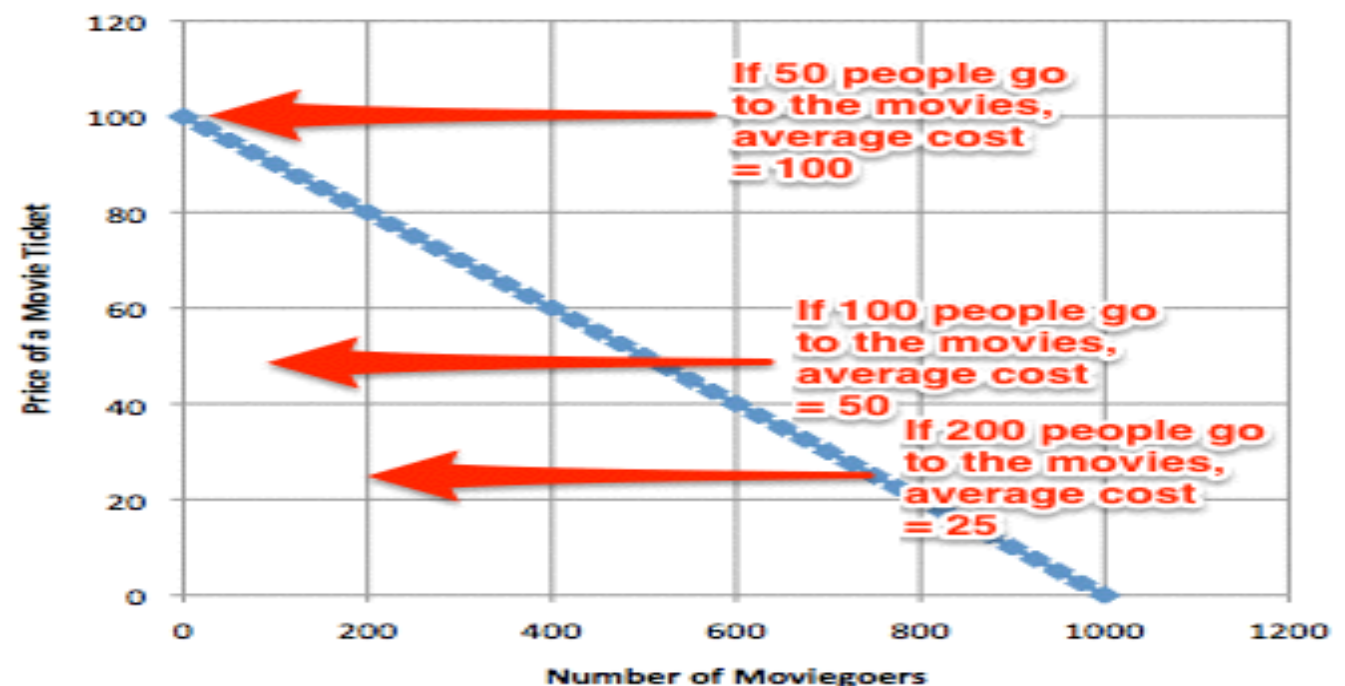


What Is This Monopolist's Profit Function? III

- Profit = $(P_{d0} - aQ)Q - FC$
- Profit = $P_{d0}Q - aQ^2 - FC$
- Profit maximized when?

Number of Moviegoers	Price of Movie Ticket	Profit
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The Weekly Market for New Movies

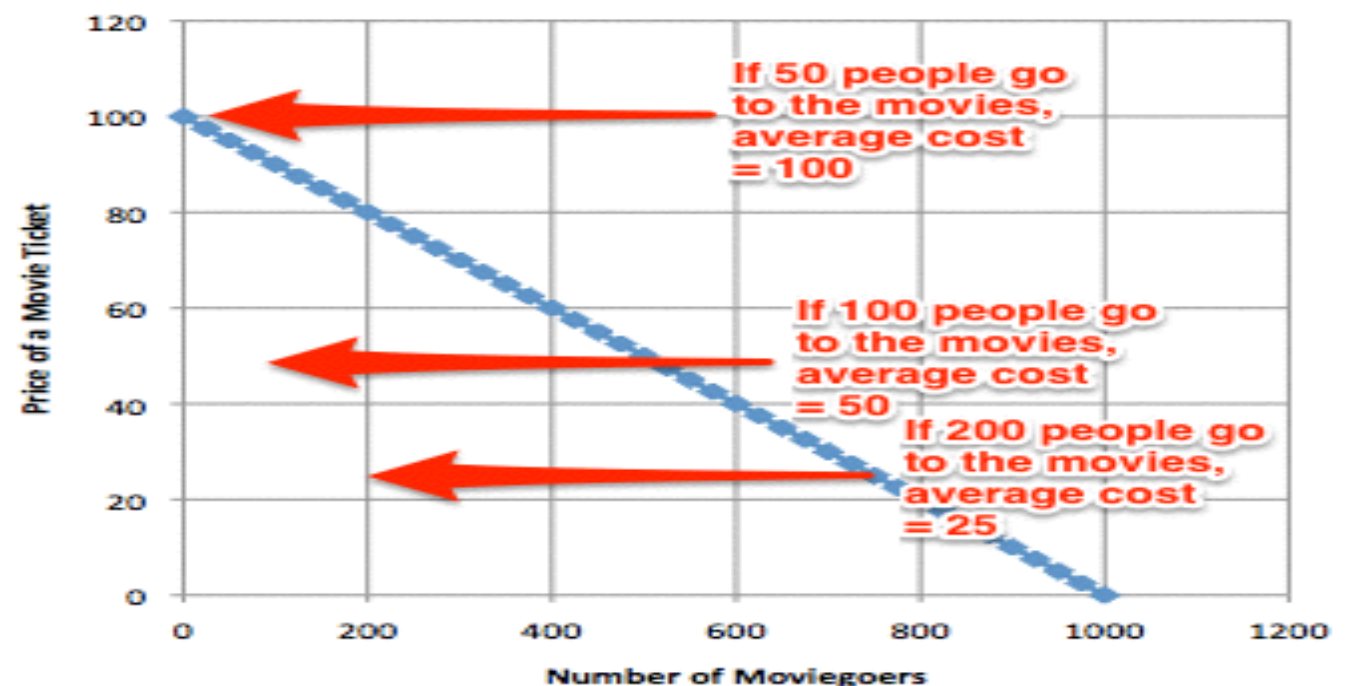


What Does This Monopolist Do?

- Profit = $(P_{d0} - aQ)Q - FC$
- Profit = $P_{d0}Q - aQ^2 - FC$
- Profit maximized when?
- Profit maximized when:
- $d/dQ(\text{Profit}) = 0$

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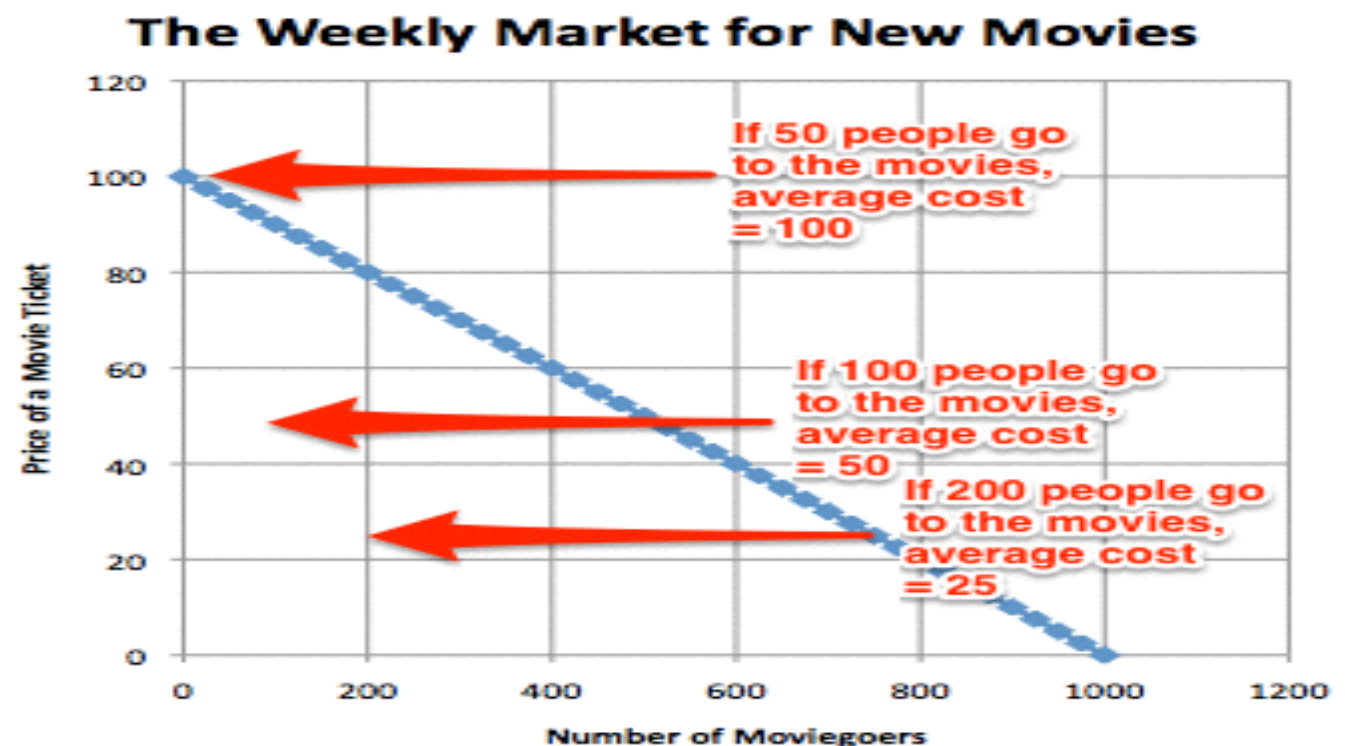
The Weekly Market for New Movies



What Does This Monopolist Do? II

- Profit = $(P_{d0} - aQ)Q - FC$
- Profit = $P_{d0}Q - aQ^2 - FC$
- Profit maximized when?
 - Profit maximized when:
 - $d/dQ(\text{Profit}) = 0$
 - $0 = (d/dQ)P_{d0}Q - (d/dQ)aQ^2 - (d/dQ)FC$

Number of Moviegoers	Price of Movie Ticket	Profit
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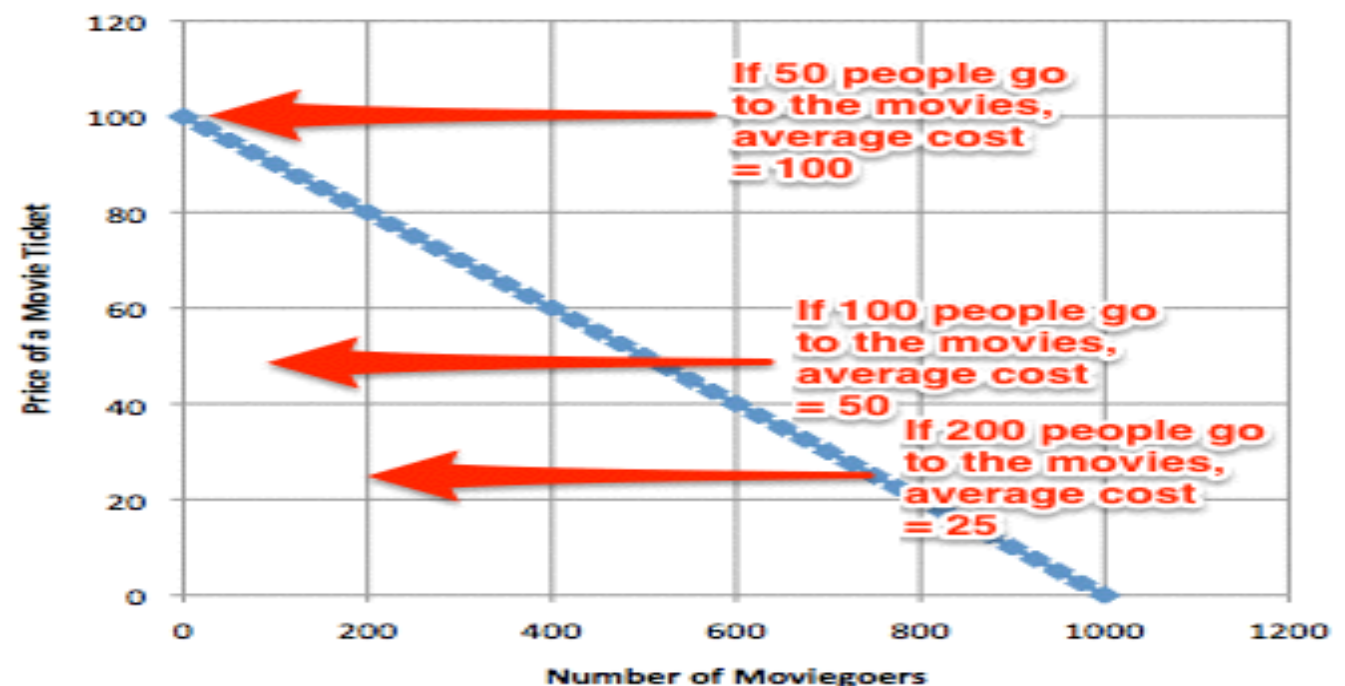


What Does This Monopolist Do? III

- $0 = (d/dQ)P_{d0}Q - (d/dQ)aQ^2 - (d/dQ)FC$
- $0 = P_{d0} - (d/dQ)aQ^2 - (d/dQ)FC$
- $0 = P_{d0} - 2aQ - (d/dQ)FC$
- $0 = P_{d0} - 2aQ$
- Profit maximized when:
 - $Q = P_{d0}/2a$

Number of Moviegoers	Price of Movie Ticket	Profit
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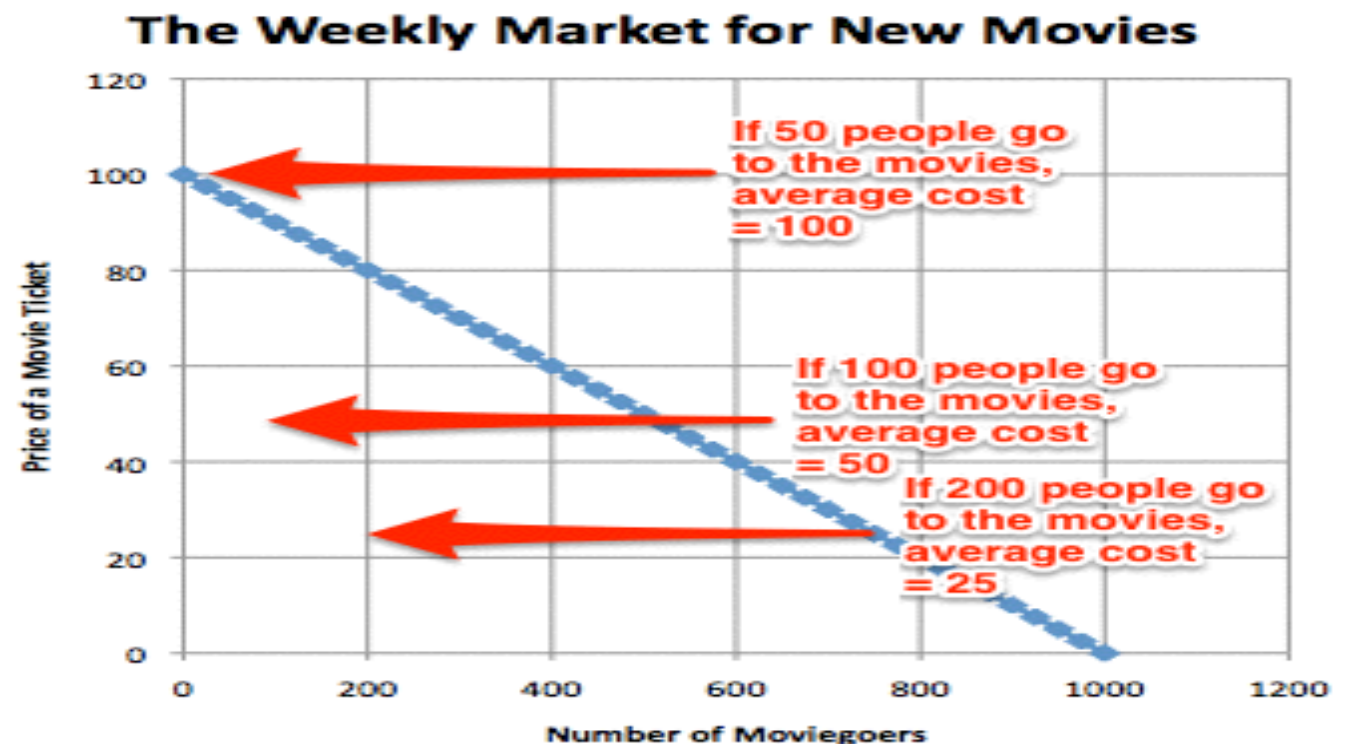
The Weekly Market for New Movies



Ladies, Gentlemen, and Warner Bros. Execs, to Your i>Clickers?

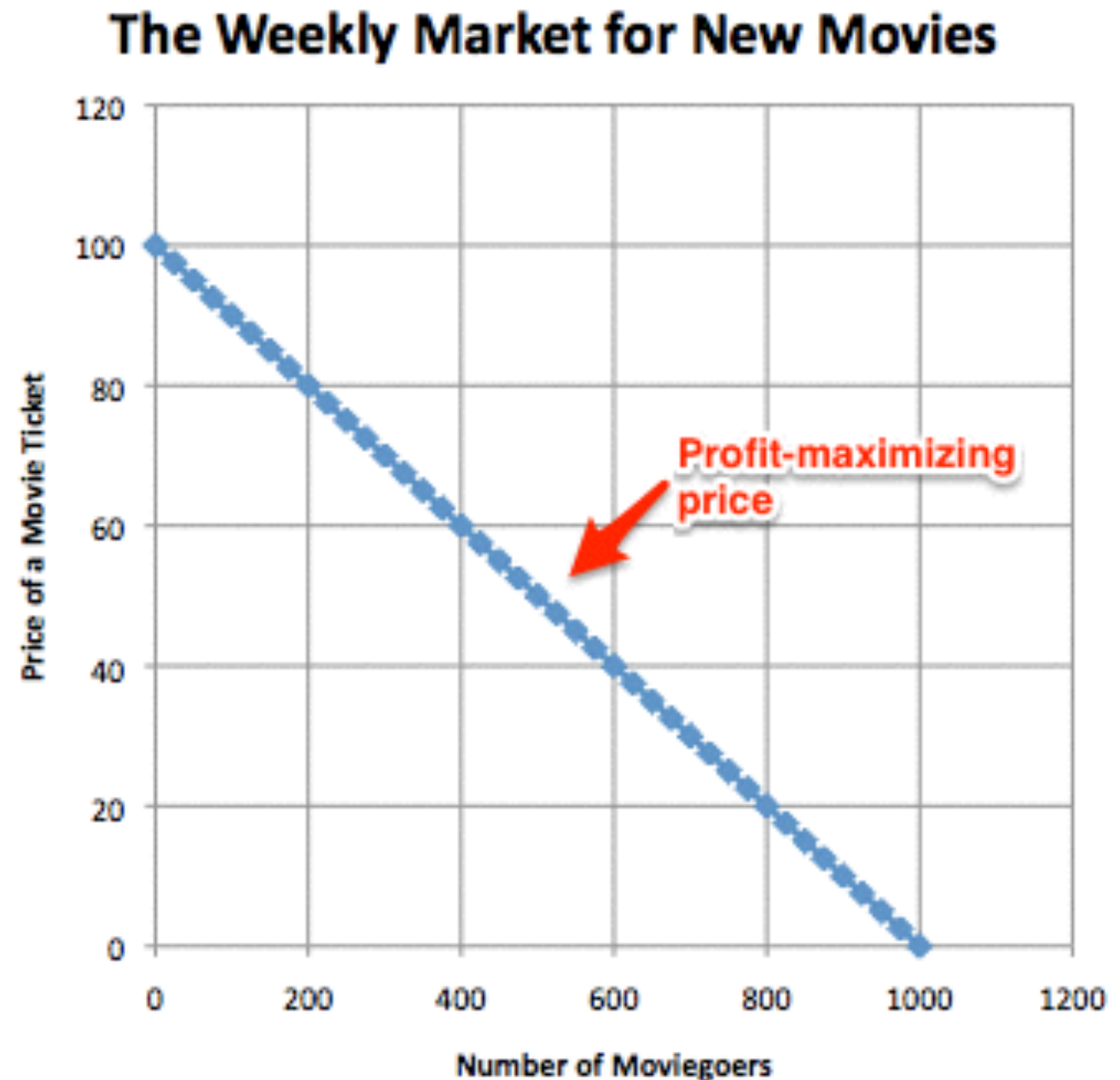
- Profit maximized when: $Q = P_{d0}/2a$
- $P_d = P_{d0} - aQ = 100 - 0.1Q$
- What price maximizes profit?
 - A. 100
 - B. 0
 - C. 50
 - D. 5.30
 - E. None of the above

Number of Moviegoers	Price of Movie Ticket	Profit
0	100.00	-5000
200	80.00	11000
400	60.00	19000
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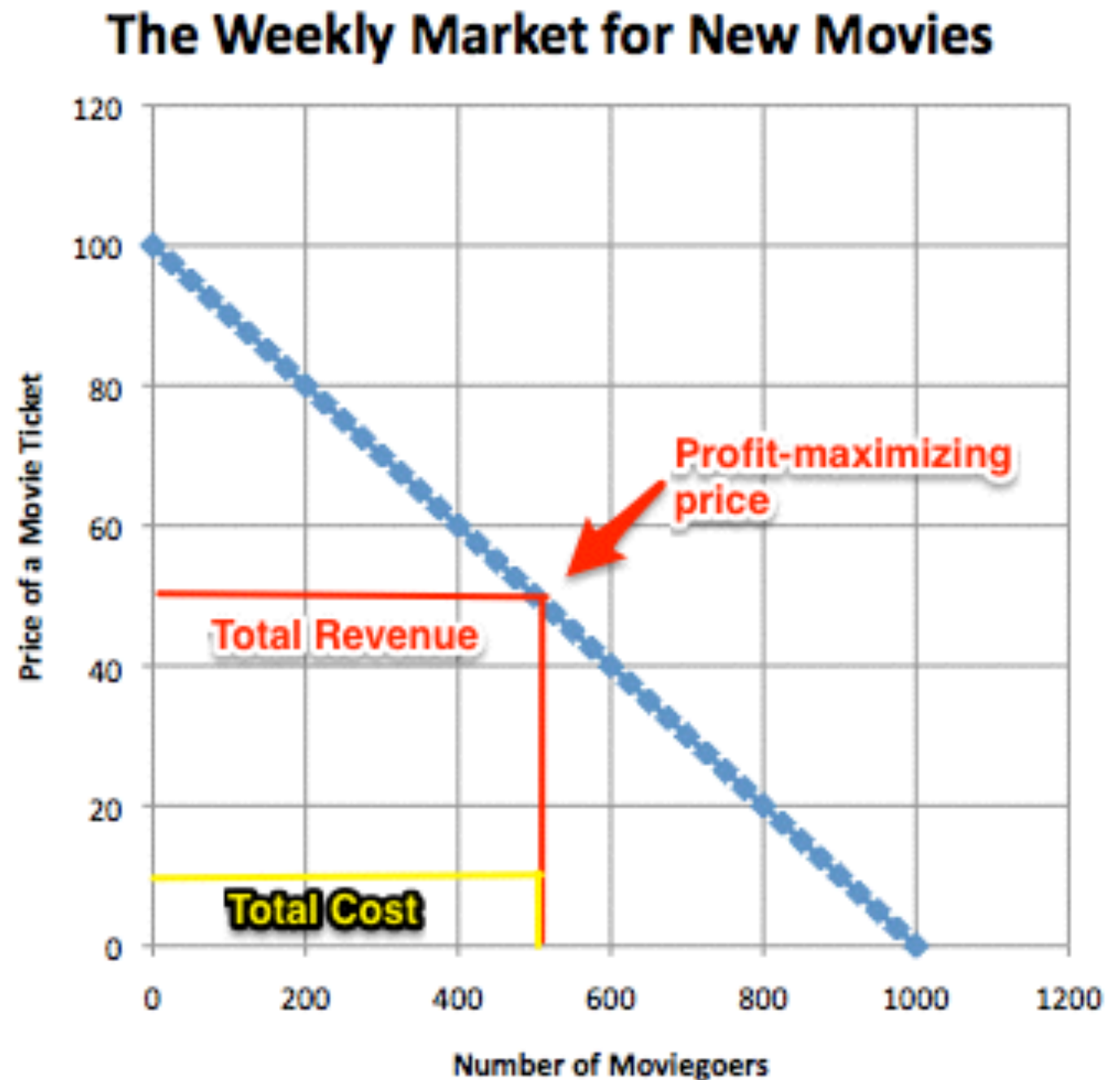
Ladies, Gentlemen, and Warner Bros. Execs, to Your i>Clickers?: Answer

- Profit maximized when: $Q = P_{d0}/2a$
- $P_d = P_{d0} - aQ = 100 - 0.1Q$
- What price maximizes profit? A. 100 B. 0 **C. 50**
D. 5.30 E. None of the above
- **$P_{d0}/2a = 100/(2 \times 0.1) = 50$**



What is the Outcome?

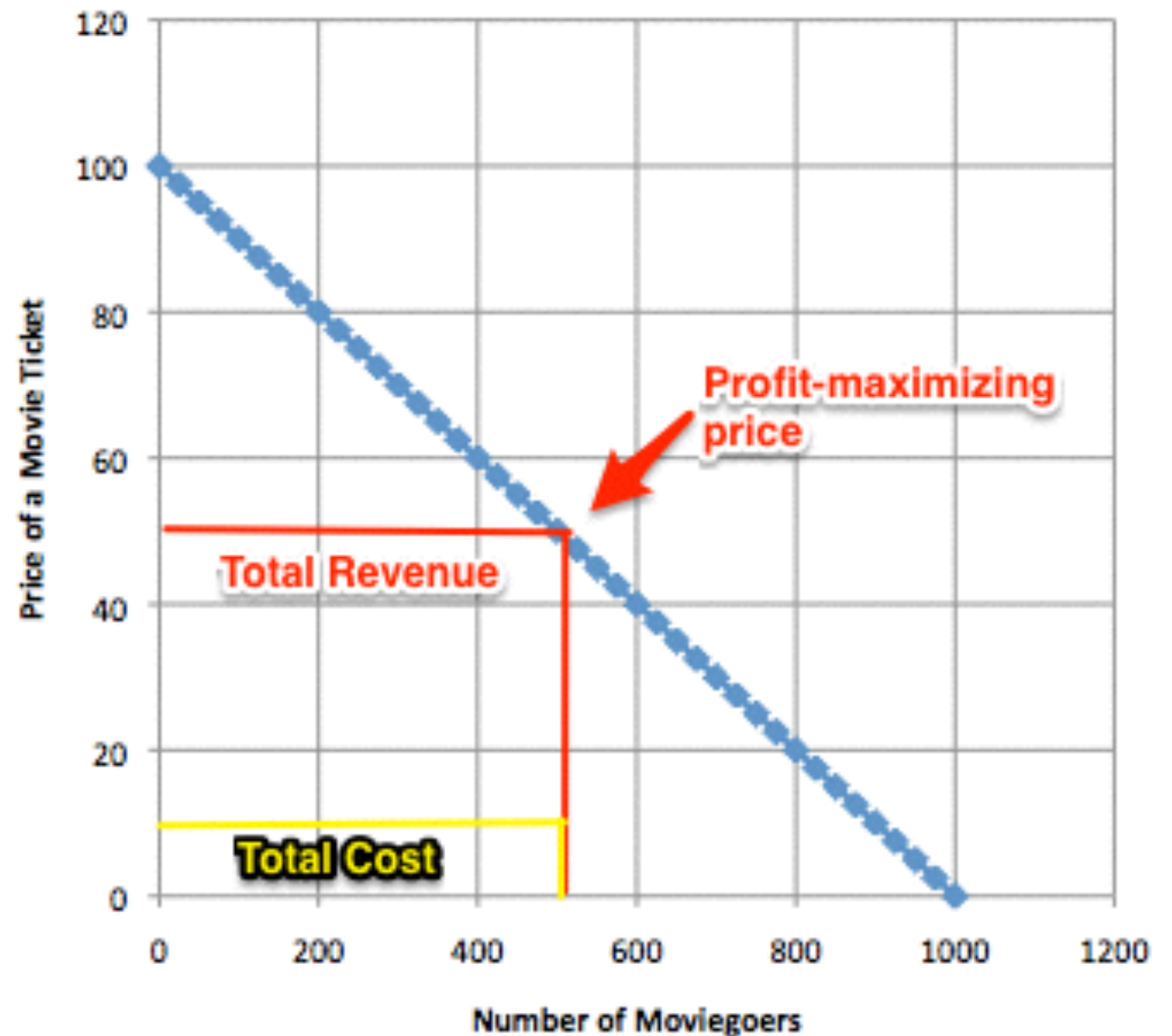
- Price = 50; Q = 500
- $TR = 50 \times 500 = 25000$
- $TC = FC = 5000$
- Profit = $TR - TC = 20000$
- Consumer Surplus?



Ladies, Gentlemen, and Moviegoers, to Your i>Clickers!

- Price = 50; Q = 500. TR = $50 \times 500 = 25000$. TC = FC = 5000. Profit = $TR - TC = 20000$
- What is the consumer surplus here?
 - A. 12,500
 - B. 50,000
 - C. 7,500
 - D. 45,000
 - E. None of the above

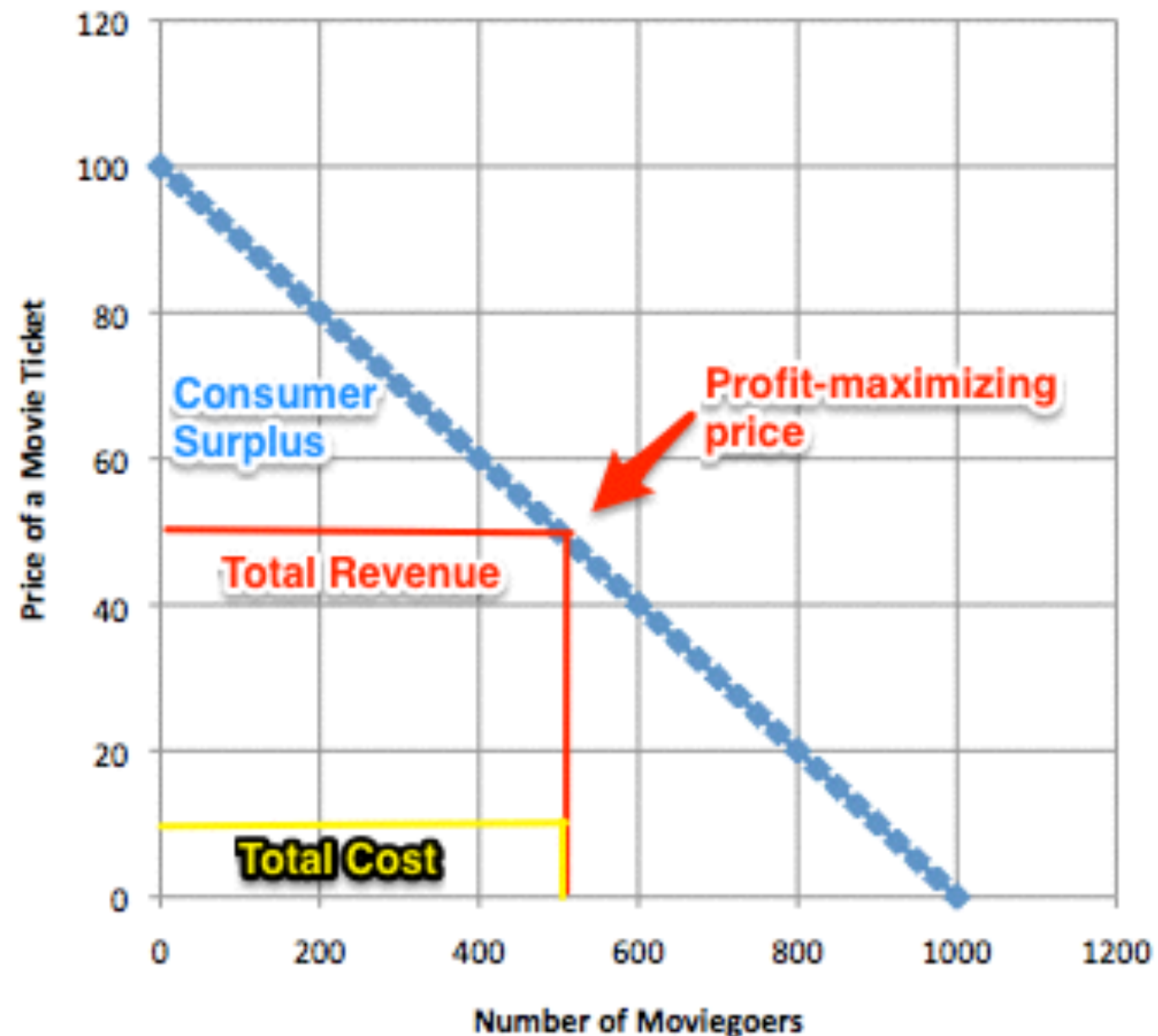
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Ladies, Gentlemen, and Moviegoers, to Your i>Clickers!: Answer

- Price = 50; Q = 500. TR = $50 \times 500 = 25000$. TC = FC = 5000. Profit = TR - TC = 20000
- What is the consumer surplus here? **A. 12,500** B. 50,000 C. 7,500 D. 45,000 E. None of the above
- **At a price of 50, AWTP=75**
- **At a price of 50, 500 people go to the movies**
- **At a price of 50, CS = $(75 - 50) \times 500 = 12,500$**

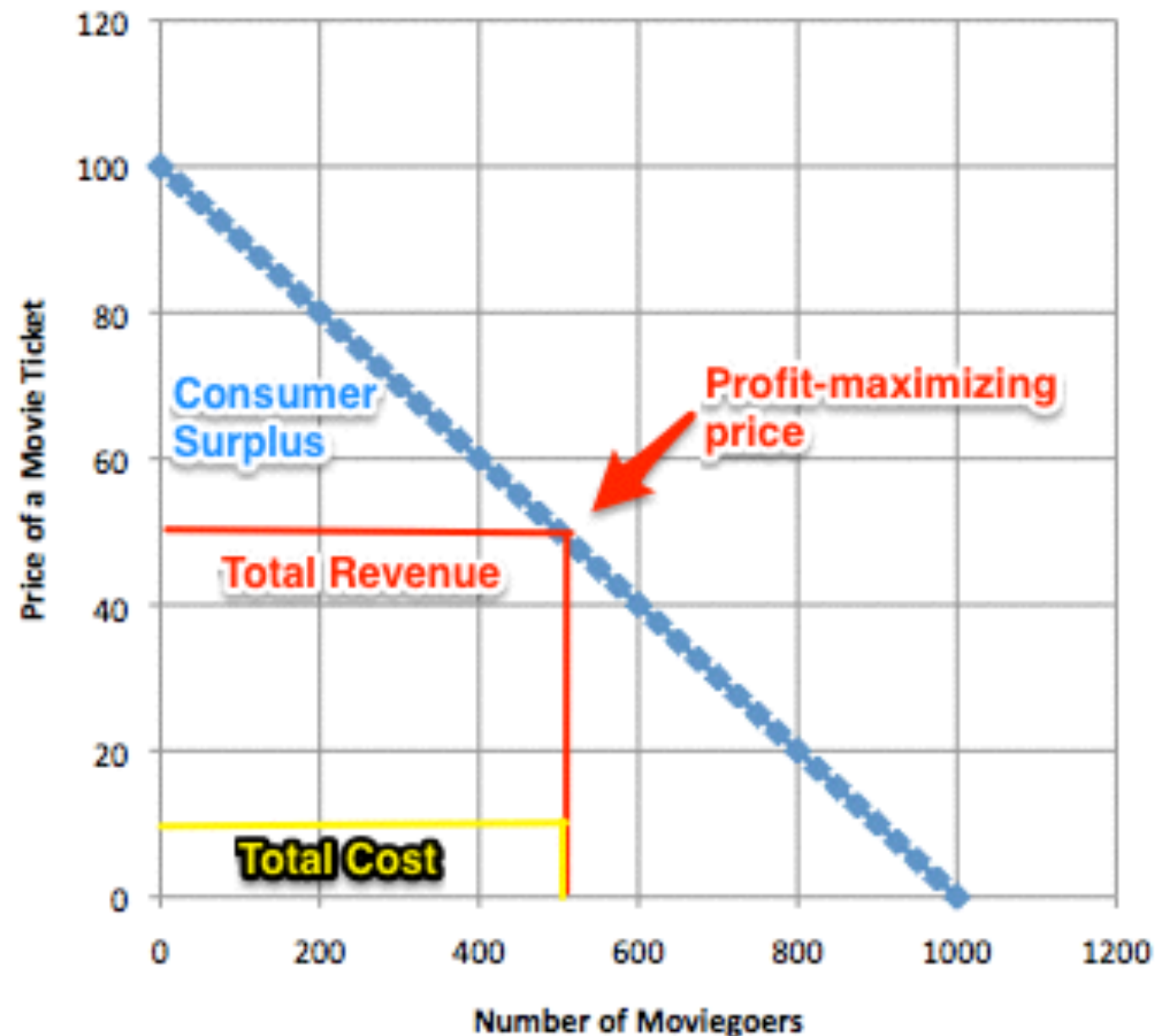
The Weekly Market for New Movies



How Is This Monopolist's Market Doing?

- Price = 50; Q = 500. TR = $50 \times 500 = 25000$. TC = FC = 5000.
- Profit = TR - TC = 20000
- Consumer Surplus = CS = 12500
- Total Surplus = 32500

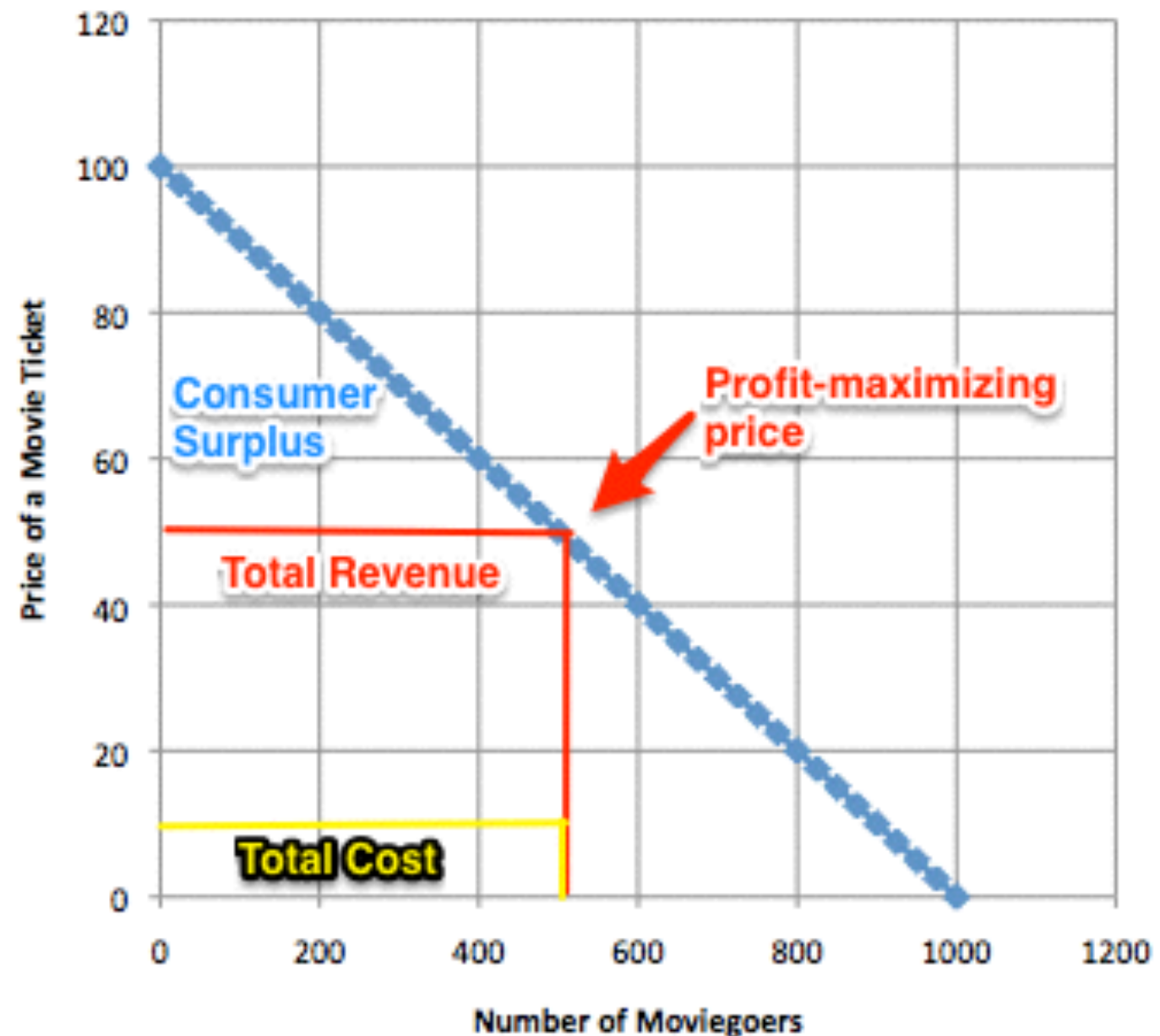
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How Is This Monopolist's Market Doing? II

- Price = 50; Q = 500. TR = $50 \times 500 = 25000$. TC = FC = 5000.
- Profit = $TR - TC = 20000$
- Consumer Surplus = CS = 12500
- Total Surplus = 32500
- Do we value producer profit as highly as we do consumer surplus?

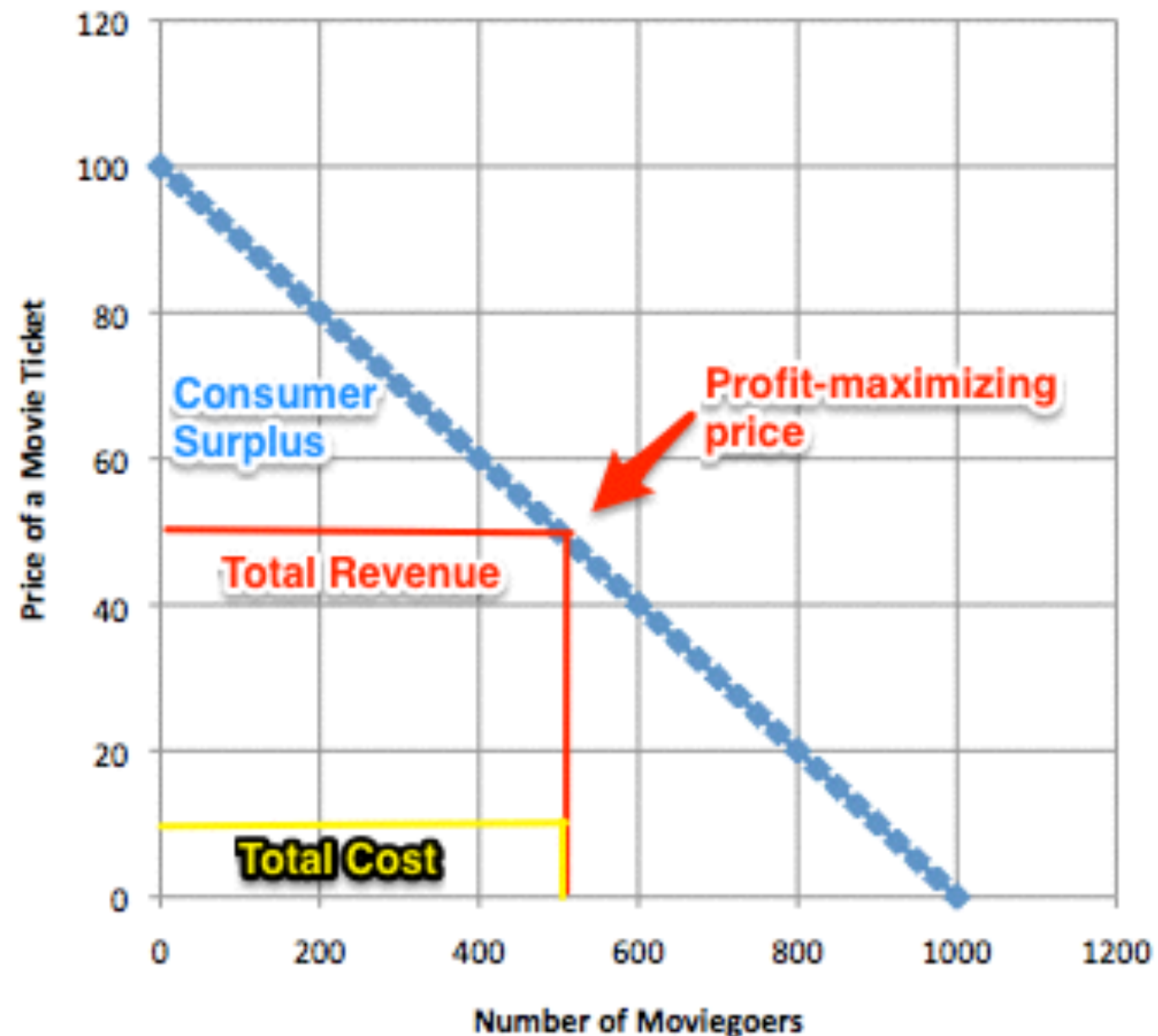
The Weekly Market for New Movies



How Is This Monopolist's Market Doing? III

- Price = 50; Q = 500. TR = $50 \times 500 = 25000$. TC = FC = 5000.
- Profit = TR - TC = 20000
- Consumer Surplus = CS = 12500
- Total Surplus = 32500
- Do we value producer profit as highly as we do consumer surplus?
 - What do you think?

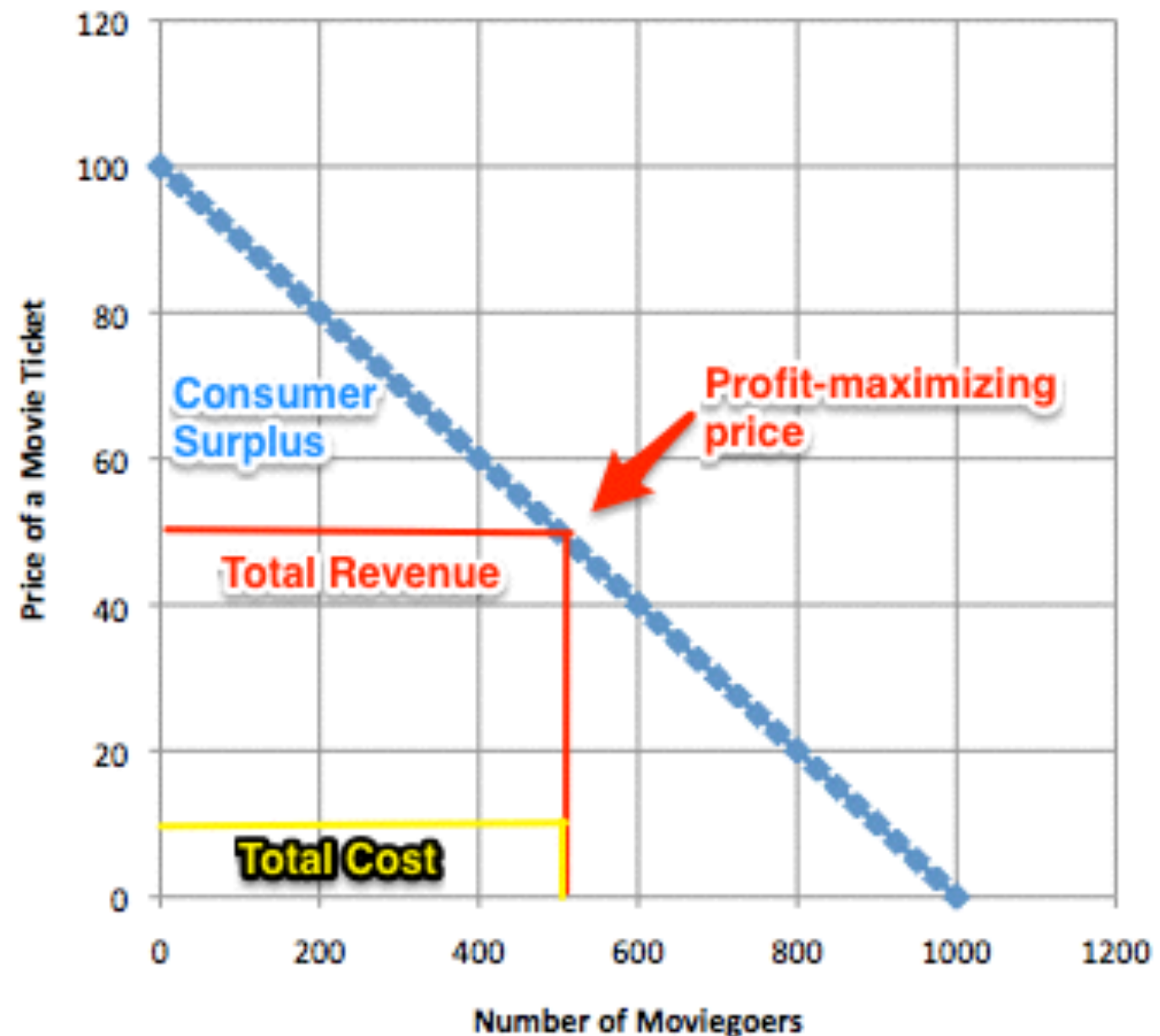
The Weekly Market for New Movies



How Is This Monopolist's Market Doing? IV

- Price = 50; Q = 500. TR = $50 \times 500 = 25000$. TC = FC = 5000.
- Profit = TR - TC = 20000
- Consumer Surplus = CS = 12500
- Total Surplus = 32500
- Do we value producer profit as highly as we do consumer surplus?
 - What do you think?
 - I say "YES!!!!": This is my cousin Phil we are talking about, after all

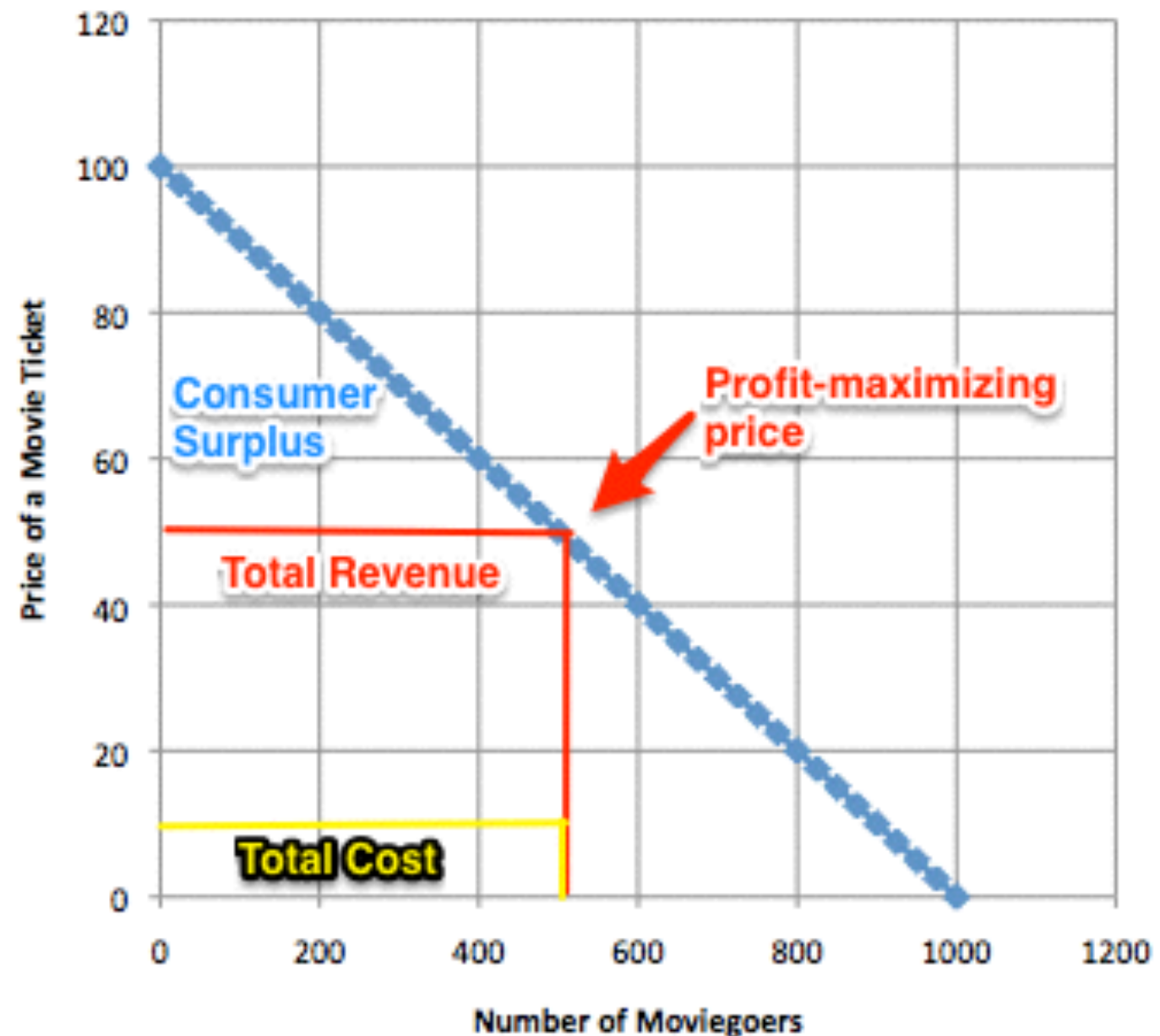
The Weekly Market for New Movies



How Is This Monopolist's Market Doing? V

- Price = 50; Q = 500. TR = $50 \times 500 = 25000$.
TC = FC = 5000.
- Profit = TR - TC = 20000
- Consumer Surplus = CS = 12500
- Total Surplus = 32500
- Do we value producer profit as highly as we do consumer surplus?
 - What do you think?
 - I say "YES!!!!": This is my cousin Phil we are talking about, after all
- **BUT EVEN SO, WE HAVE ONLY 32,500 OF SURPLUS. IN THE FIRST-BEST WE HAD 45,000**

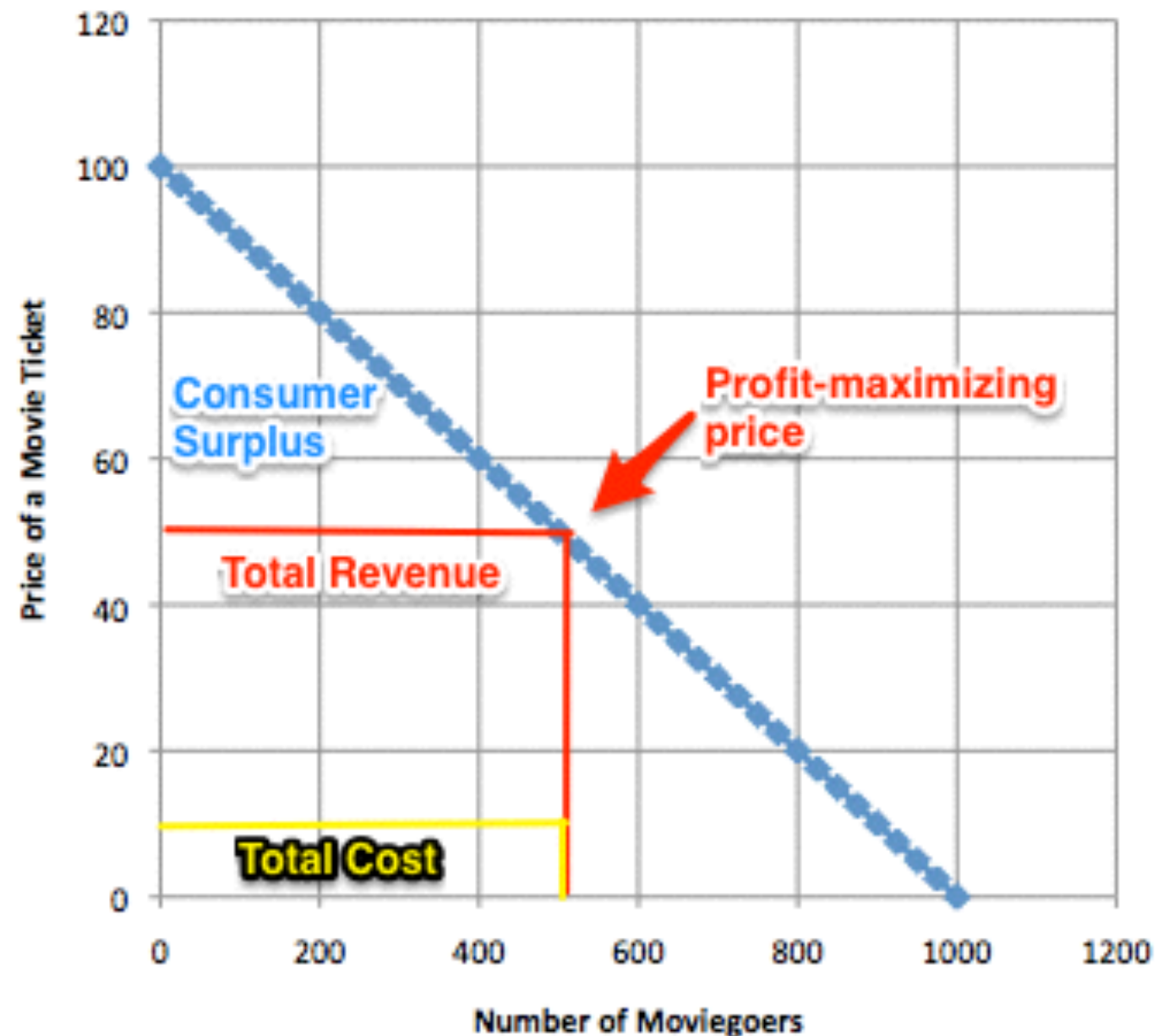
The Weekly Market for New Movies



How Is This Monopolist's Market Doing? VI

- WE HAVE ONLY 32,500 OF SURPLUS.
- IN THE FIRST-BEST WE HAD 45,000
- 12,500 IS A LOT OF SURPLUS TO THROW AWAY...

The Weekly Market for New Movies



Could We Fix Things without Nationalizing the Movie Industry?

- I know, I know we talked about how lousy price ceilings are...
- But suppose we imposed a price ceiling of 5.30?

