n the Importance of Speed in ntitrust Enforcement

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genda

- **Motivation**
- **Characterization of Predation**
- **Enforcement Options**
- **A Simple Model**
- **Conclusions**

Motivation

"The possibility of error in applying the legal standard to the facts of the case implicates another essential tradeoff. Process costs designed to reduce the incidence of error must be traded off against the costs that result from the occurrence of error. … *Error costs also have to be traded off with those costs resulting from delay.* The passage of time may decrease the likelihood of error by permitting a more extensive inquiry into disputed issues. The costs associated with delay, *such as uncertainty over the outcome or the impairment of evidence*, however, must be traded off with the associated reduction in error costs" (W. Schwartz, 1980).

Speed in merger control

Speed in cartel enforcement

Speed in predation enforcement

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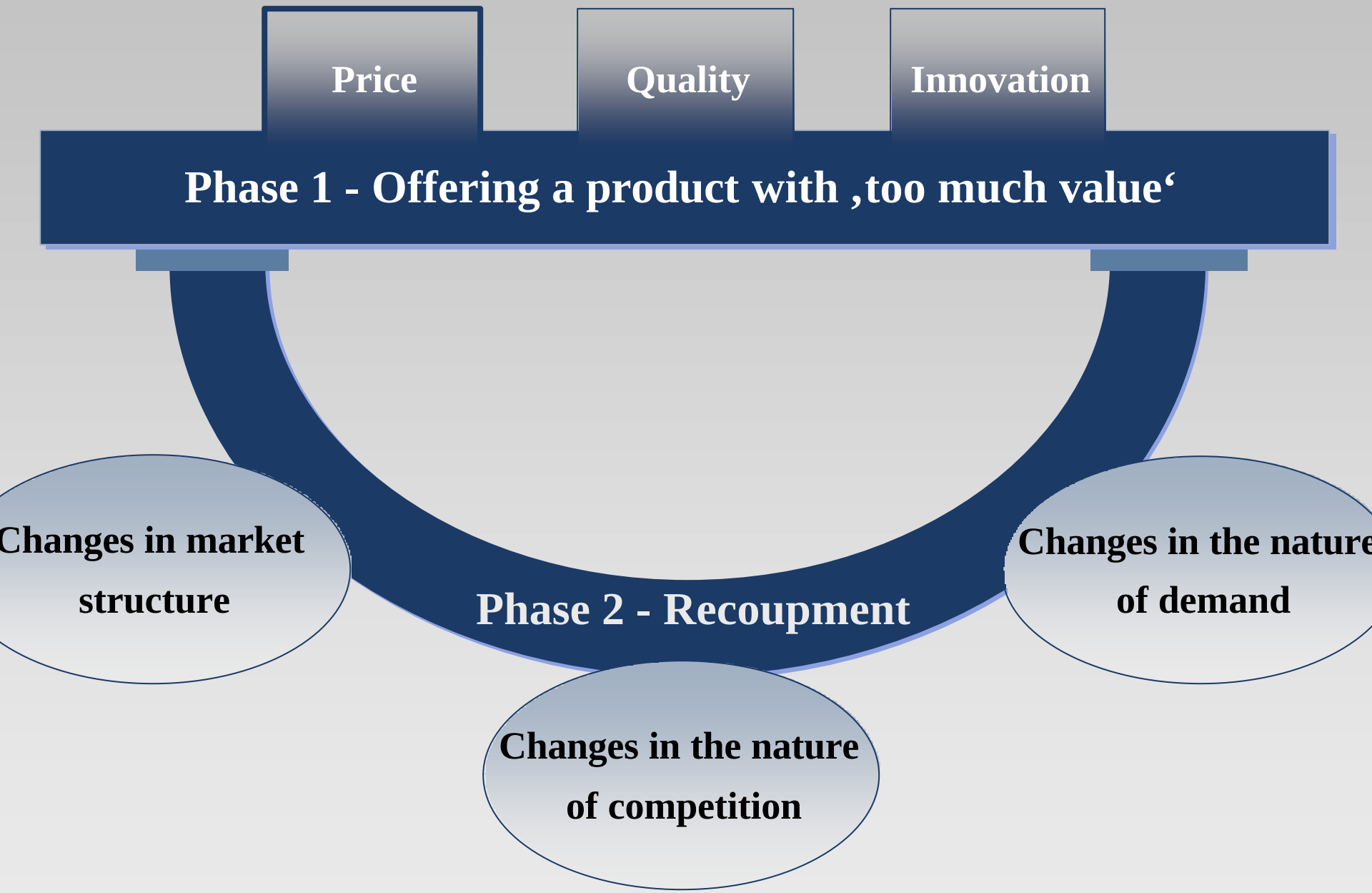
haracterization of Predation



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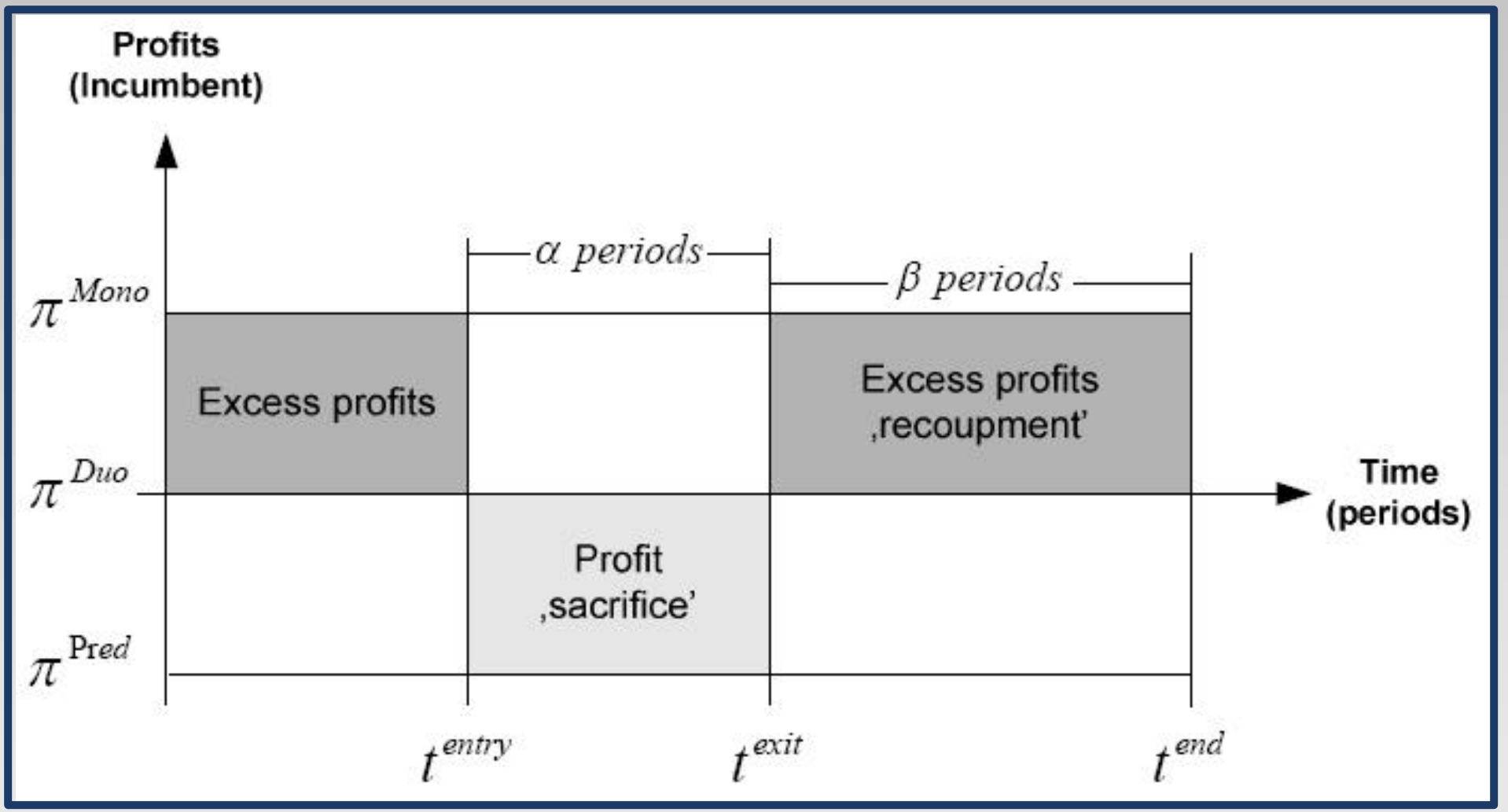
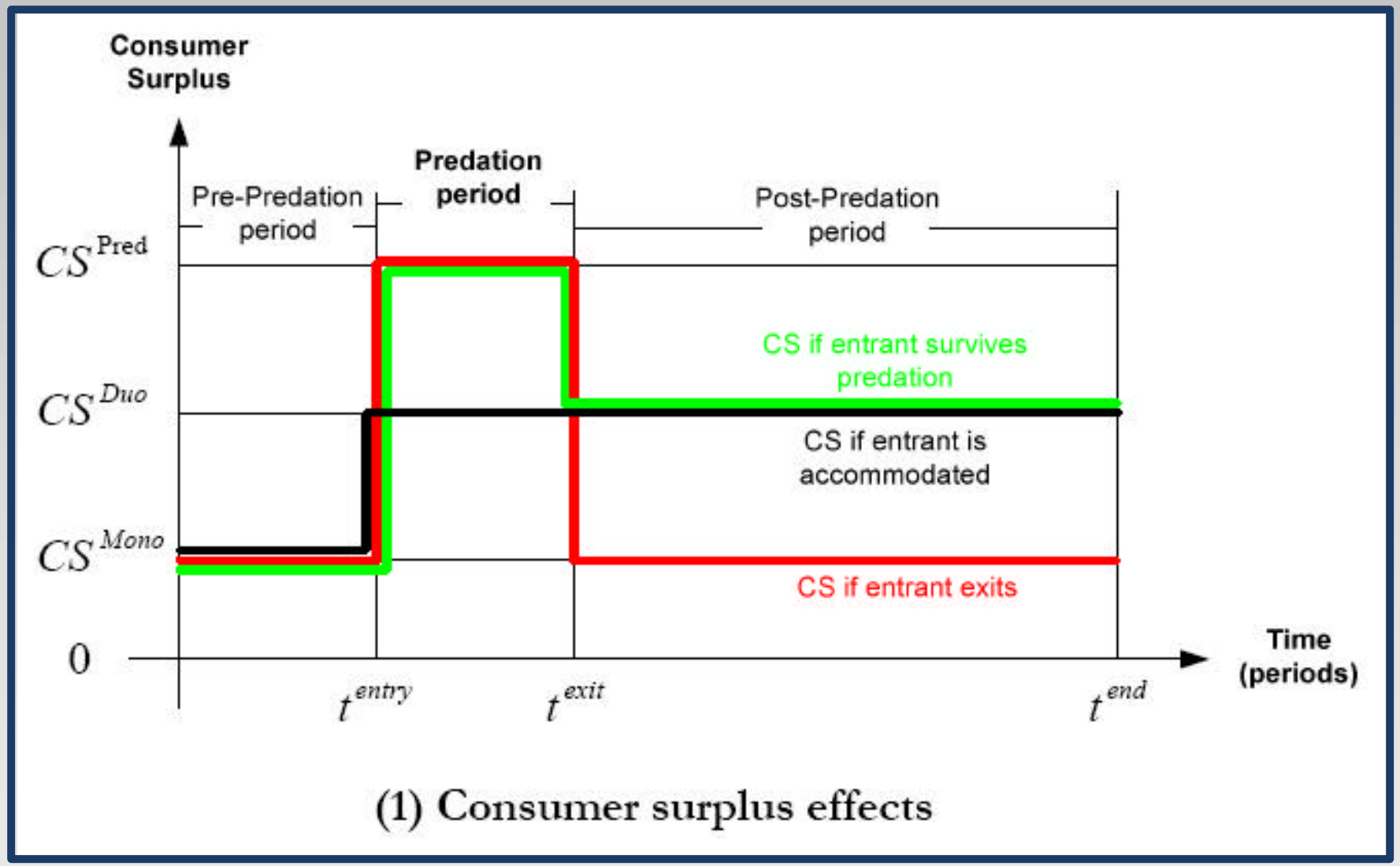
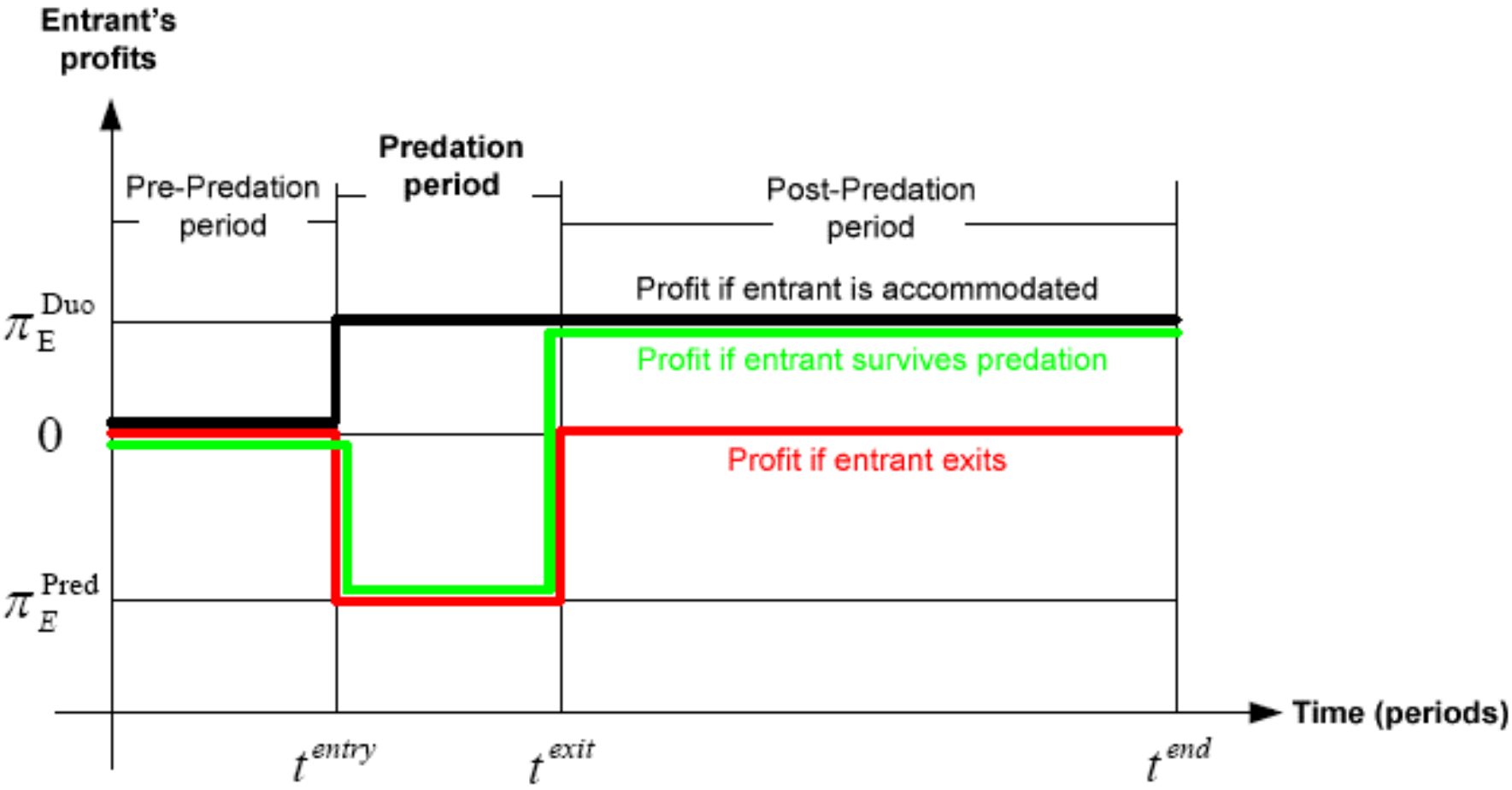


elfare effects - Consumers



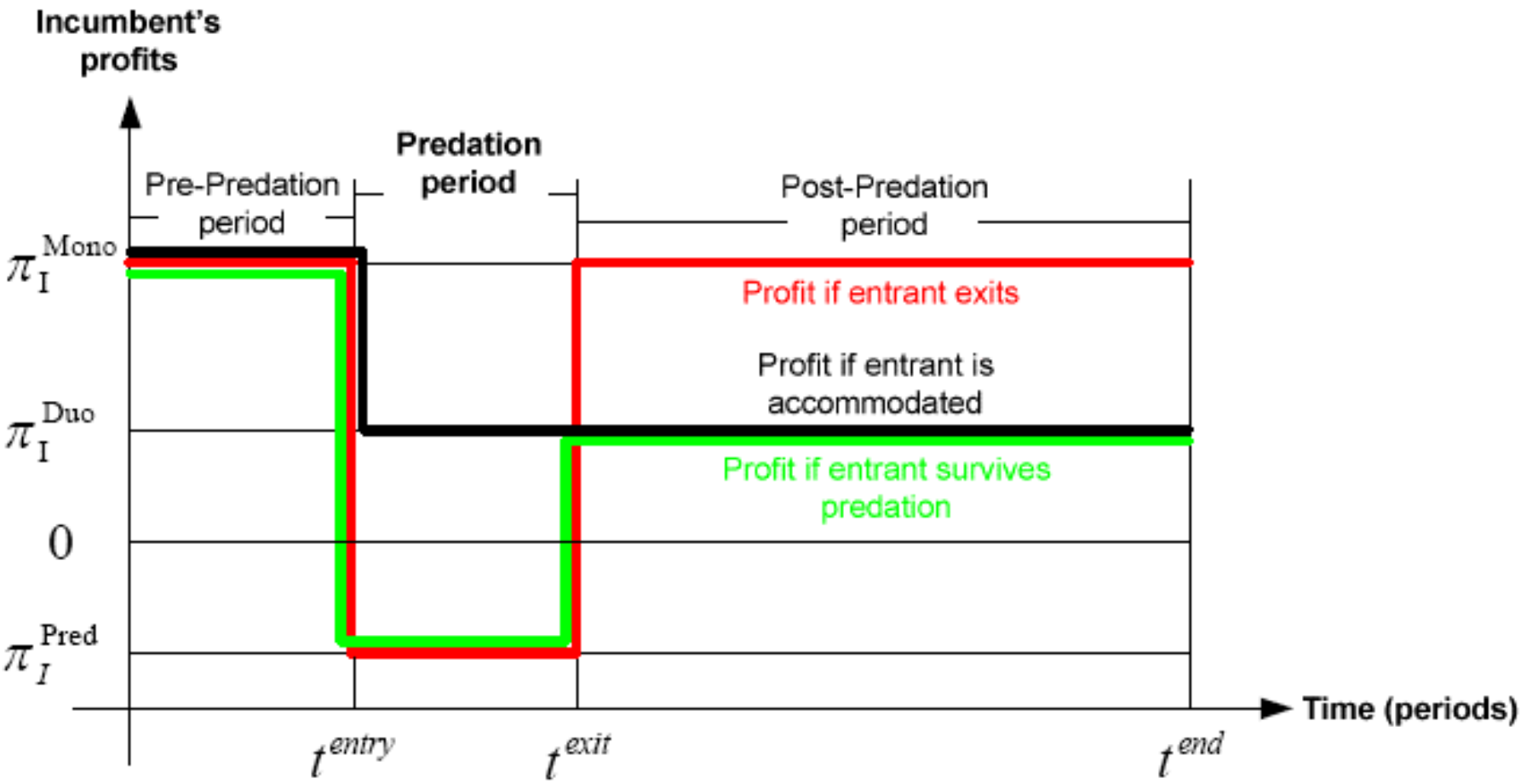
(1) Consumer surplus effects

elfare effects – Entrant



(2) Entrant's profit effects

elfare effects – Incumbent



(3) Incumbent's profit effects

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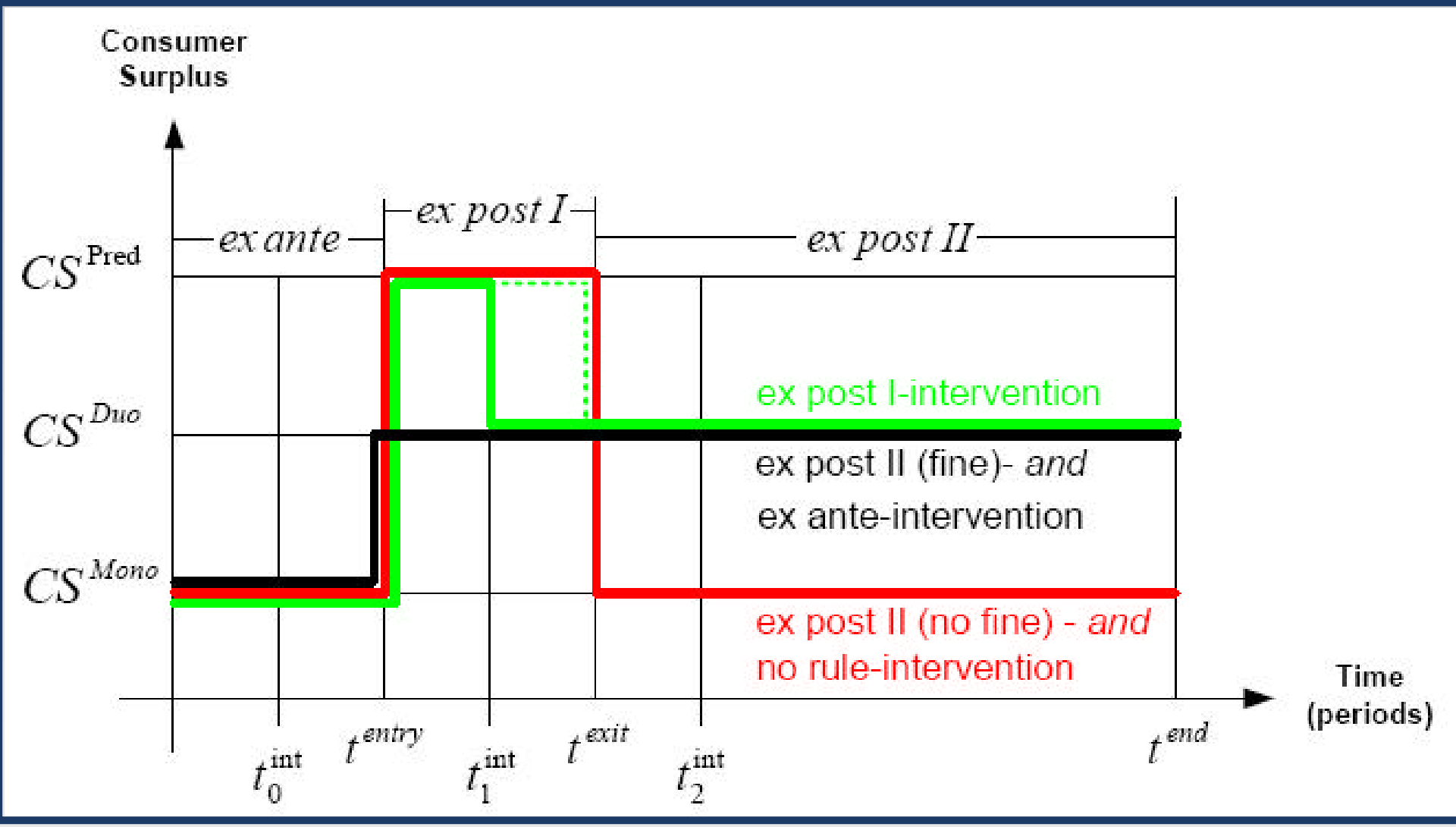

Welfare effects of enforcement options I

Ex-post I approach is superior to a 'no rule' approach

$$CS^{Duo} - CS^{Mono} > p_I^{Mono} - \left(p_E^{Duo} + p_I^{Duo}\right)$$

Ex-ante per se rule is superior to an ex post I rule of reason

$$CS^{Duo} - CS^{\Pr ed} > p_E^{\Pr ed} + p_I^{\Pr ed} - p_E^{Duo} - p_I^{Duo}$$

Welfare effects of enforcement options II

Optimal gain-based fine

$$F_{Gain\,based} = b\left(p_I^{Mono} - p_I^{Duo}\right) + a\left(p_I^{Pred} - p_I^{Duo}\right)$$

‚One' optimal harm-based fine (welfare loss)

$$F_{Harm\,based} = \left[(a+b)\left(CS^{Duo} + p_E^{Duo} + p_I^{Duo}\right)\right] -$$
$$\left[\left\{a\left(CS^{Pred} - p_E^{Pred} - p_I^{Pred}\right) + b\left(CS^{Mono} + p_I^{Mono}\right)\right\}\right]$$

‚Another' optimal harm-based fine (net harm to others)

$$F_{Harm\,based} = a\left[\left(CS^{Duo} - CS^{Pred}\right) + \left(p_E^{Duo} - p_E^{Pred}\right)\right]$$
$$+ b\left[\left(CS^{Duo} - CS^{Mono}\right) + p_E^{Duo}\right]$$

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odel specification I

Profit functions

$$\Pi_I = (a - b(q_I + q_E) - c_I)q_I - FC_I$$

$$\Pi_E = (a - b(q_I + q_E) - c_E)q_E - FC_E$$

Competitive benchmark: Non-cooperative Cournot equilibrium

$$q_I^C = \frac{a - 2c_I + c_E}{3b}$$

$$q_E^C = \frac{a - 2c_E + c_I}{3b}$$

$$p^C = \frac{a + c_I + c_E}{3}$$

odel specification II

Predation: Predator sells quantity such that the prey makes no profits

$$q_E^P = \frac{\left(a - bq_I^P - c_E\right)}{2b}$$

$$\Pi_E^P\left(q_I^P\right) = \left(\frac{a - bq_I^P - c_E}{2}\right)^2\left(\frac{1}{b}\right) - FC_E = 0$$

Predation: Market outcomes

$$q_I^P = \frac{a - c_E}{b} - 2\sqrt{FC_E / b}$$

$$q_E^P = \sqrt{FC_E / b}$$

$$p^P = \sqrt{FC_E b} + c_E$$

eneral market outcomes

	Incumbent's profits	Entrant's profits	Consumer surplus
opoly	$\frac{(a-c_I)^2}{4b} - FC_I$	0	$\frac{(a-c_I)^2}{8b}$
opoly	$\frac{(a-2c_I+c_E)^2}{9b} - FC_I$	$\frac{(a-2c_E+c_I)^2}{9b} - FC_E$	$\left\{a-\left[\frac{a+c_I+c_E}{3}\right]\right\}\left[\frac{a-2c_I+c}{3b}\right.$ $\left\{\frac{a-2c_E+c_I}{3b}\right\}\left[\frac{1}{2}\right]$
lation	$\left\{\frac{a-c_E}{b}-2\sqrt{FC_E/b}\right\}\times$ $\left[\left(\sqrt{FC_E b}+c_E\right)-c_I\right]-FC_I$	0	$\left\{a-\left[\sqrt{FC_E b}+c_E\right]\right\}\left[\sqrt{FC_E/b}\right.$ $\left\{\frac{a-c_E}{b}-2\sqrt{FC_E/b}\right\}\left[\frac{1}{2}\right]$

Market specification

Inverse demand function

$$p=1-0.001(q_1+q_2)$$

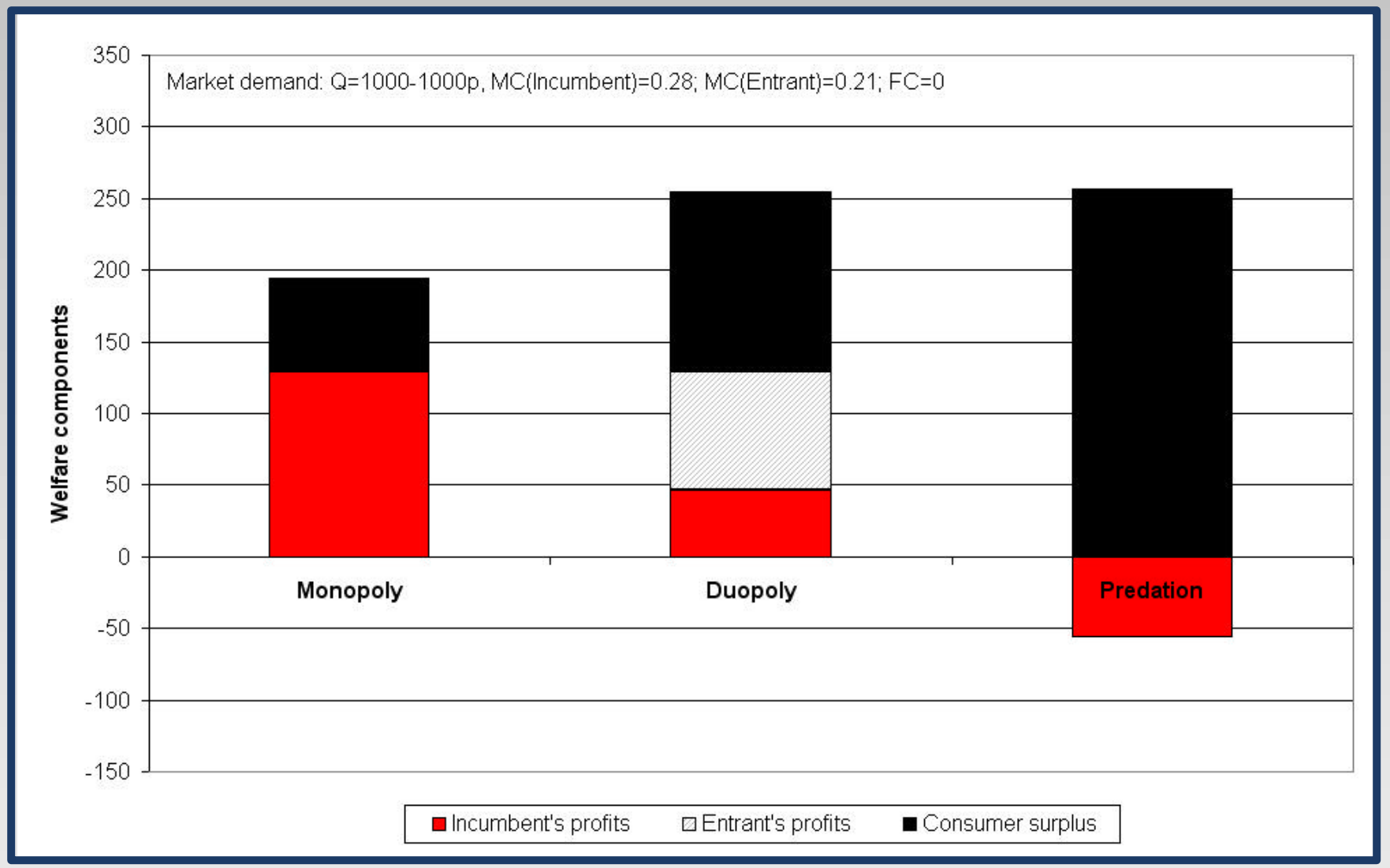
Scenarios

	MC (Incumbent)	MC (Entrant)	FC	a	b
Scenario 1	**0.28**	**0.28**	**0; 10**	**5**	**5; 7; 10; 15**
Scenario 2	**0.28**	**0.21**	**0; 10**	**5**	**5; 7; 10; 15**
Scenario 3	**0.28**	**0.14**	**0; 10**	**5**	**5; 7; 10; 15**

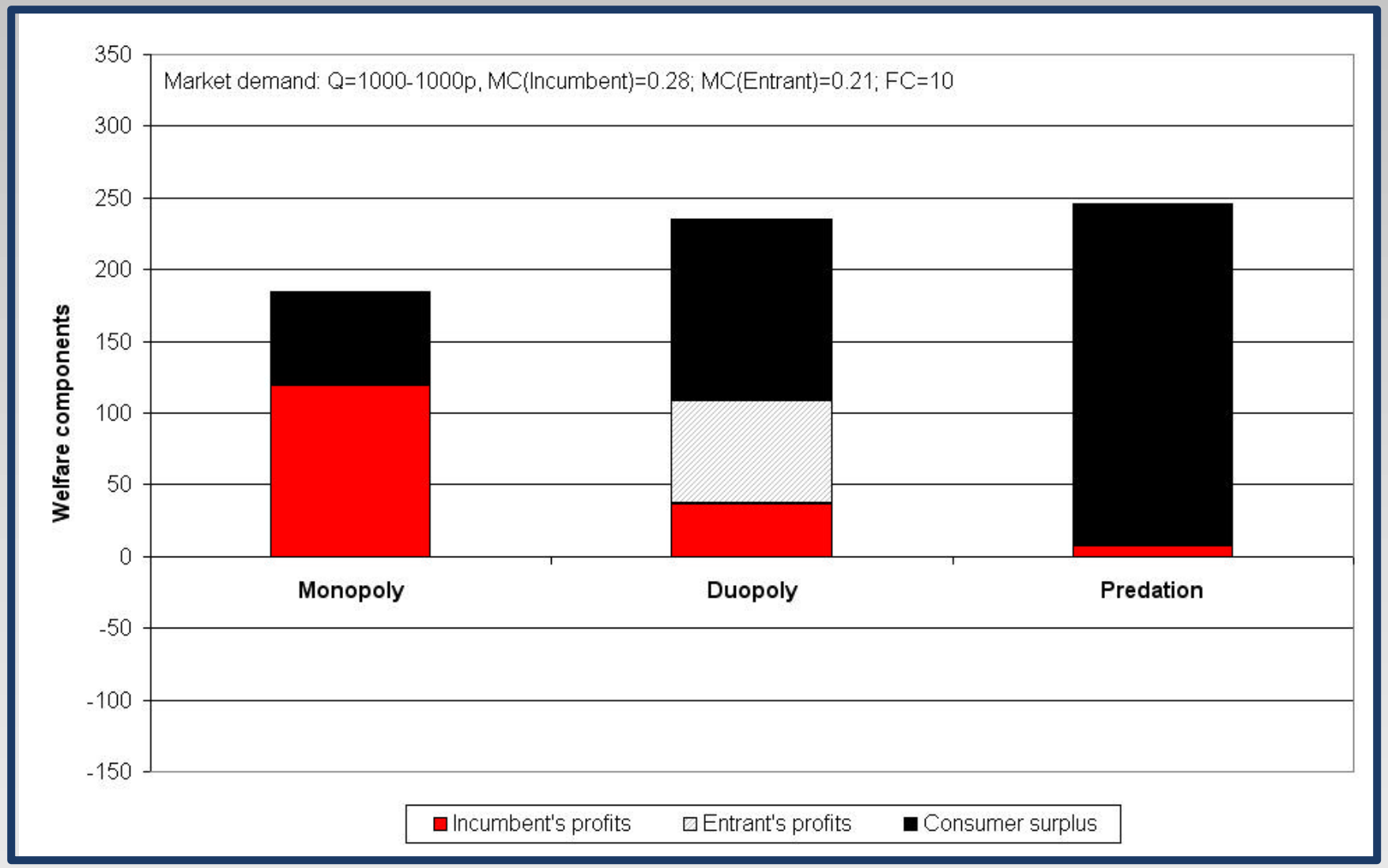
Market prices

	Cost advantage	FC=0	FC=10	FC=20
Monopoly		0,64	0,64	0,64
Duopoly	no	0,52	0,52	0,52
	moderate	0,50	0,50	0,50
	large	0,47	0,47	0,47
Predation	no	0,28	0,38	0,42
	moderate	**0,21**	0,31	0,35
	large	**0,14**	**0,24**	0,28

Welfare components FC=0



elfare components FC=10



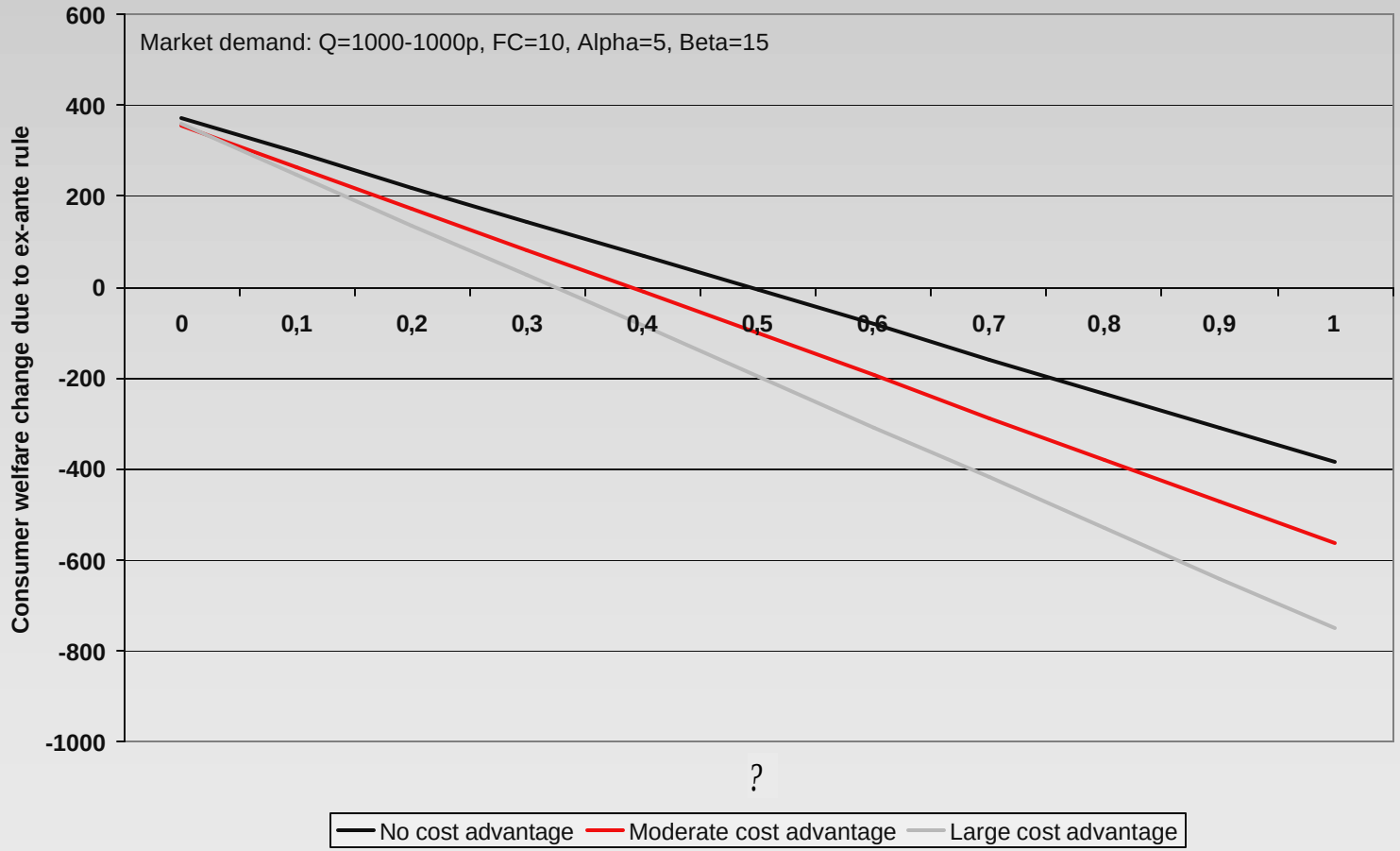
esults - Overall

	Predation as a rational business strategy	Net welfare increase compared to monopoly	Ex post I rule outperforms 'no rule'	Gain-based fine	Harm-based fine	Ex ante outperforms ex post	Gain-based fine - % of monopoly turnover
	(1)	(2)	(3)	(4)	(5)	(6)	
	$\Delta<0$	$\Delta>0$	$\Delta>0$	$\Delta>0$	$\Delta>0$	$\Delta>0$	
Scenario 2-Entrant has moderate cost advantage							
$\alpha=5,\ \beta=5$							
No fixed cost	**97,9**	311,8	302,8	**-97,9**	196,0	**-8,9**	***-4%***
10 per firm	-267,1	306,8	252,8	267,1	466,0	**-54,0**	*10%*
$\alpha=5,\ \beta=7$							
No fixed cost	-67,4	311,8	423,9	67,4	482,4	**-8,9**	*2%*
10 per firm	-432,4	306,8	353,9	432,4	732,4	**-54,0**	*16%*
$\alpha=5,\ \beta=10$							
No fixed cost	-315,4	311,8	605,6	315,4	912,1	**-8,9**	*11%*
10 per firm	-680,4	306,8	505,6	680,4	1132,1	**-54,0**	*25%*
$\alpha=5,\ \beta=15$							
No fixed cost	-728,7	311,8	908,4	728,7	1628,2	**-8,9**	*26%*
10 per firm	-1093,7	306,8	758,4	1093,7	1798,2	**-54,0**	*40%*

peed of enforcement (Consumer welfare)

Ex ante- versus ex post I rule under uncertainty (CS)

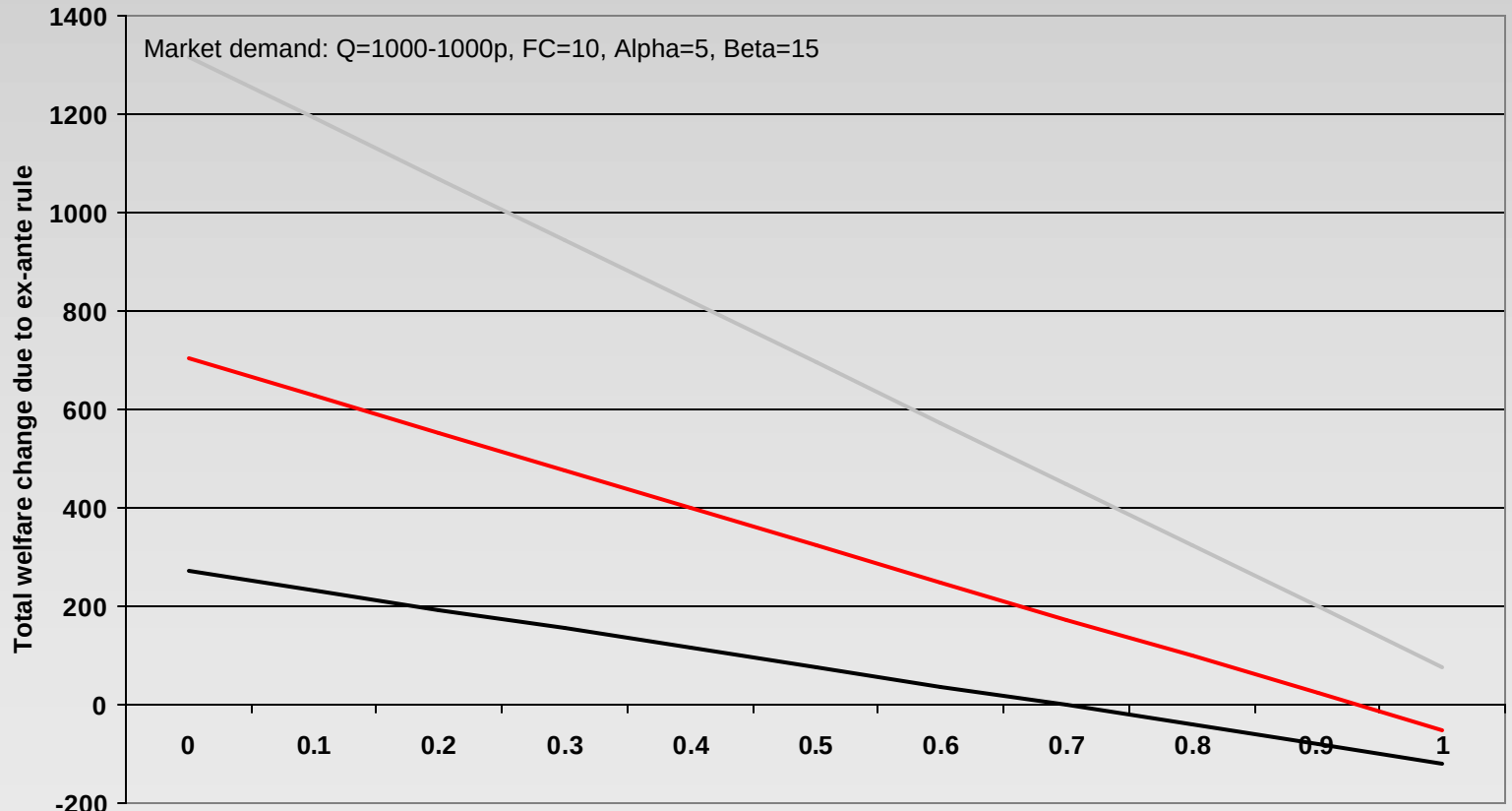
$$(a+b)CS^{Duo} > aCS^{Pred} + b\left[qCS^{Duo} + (1-q)CS^{Mono}\right]$$



peed of enforcement (Total welfare)

Ex ante- versus ex post I rule under uncertainty (CS+PS)

$$(a+b)\left(CS^{Duo}+p_E^{Duo}+p_I^{Duo}\right)>a\left(CS^{Pred}+p_E^{Pred}+p_I^{Pred}\right)+$$
$$b\left[\left(q\left(CS^{Duo}+p_E^{Duo}+p_I^{Duo}\right)+(1-q)\left(CS^{Mono}+p_I^{Mono}\right)\right)\right]$$



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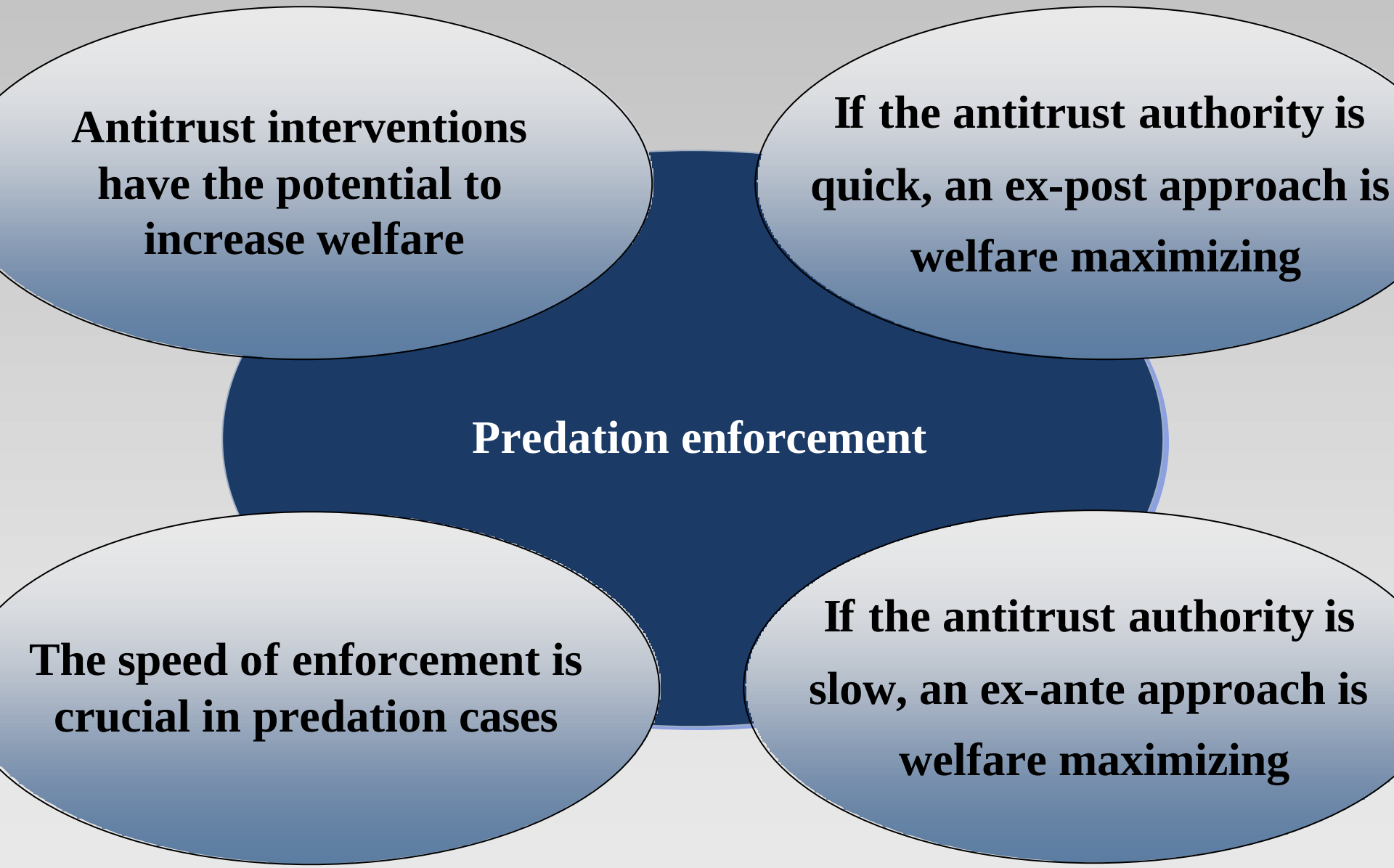
Antitrust interventions have the potential to increase welfare
If the antitrust authority is quick, an ex-post approach is welfare maximizing
Predation enforcement
The speed of enforcement is crucial in predation cases
If the antitrust authority is slow, an ex-ante approach is welfare maximizing

Many thanks for your attention!

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