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1 Introduction

and exclusive dealing that can be exclusionary are often also efficiency enhancing (Jacobson

that results if the firm moves further down its learning curve. Similarly, the *advantagedenying/exit motive* is the marginal benefit from preventing the decrease in the probability of rival exit that results if the rival moves further down its learning curve. Other terms in α the decomposed equilibrium pricing condition capture the impact of the impact of the impact of the firm sion on its competitive position, its rival's competitive position, and so on. In this way our decomposition corresponds to the common practice of antitrust authorities to question the in the business strategy. Most important α business α business us with provides us with provides us with α a coherent and flexible way to develop alternative characterizations of a firm's predatory predatory predatory \mathbf{f} pricing incentives, some of which are motivated by the existing literature while others are novel.

To detect the presence of predatory pricing antitrust, and α uting antitrust, authorities routinely ask whether antitrust, and α utinely ask whether antitrust, authorities routinely ask whether antitrust, and α utin firm sacrifices current profit in exchange for the expectation of higher future profit following τ are \hat{f} and \hat{f} are whether the derivative of a profit function that μ is positive at $\frac{1}{2}$ every incorporate at $\frac{1}{2}$ f_1 as chosen (Edlin g_1). Our alternative characterizations characterizations characterizations characterizations characterizations characterizations characterizations characterizations characterizations charac correspond to different operations of this everything-except-effects-on-competitions of the except-effects-onprofit function and identify clusters of terms in our decomposition as the firm α predatory predat

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attempts to rationalize predatory predatory predatory pricing as an equilibrium phenomenon by means of α tion effects (Kreps, Milgrom, Roberts & Wilson 1982), informational asymmetries (Fudenberg & Tirole 1986), or financial constraints (Bolton & Sharfstein 1990), our learning-by-doing model for goes the deck η ical analysis nevertheless reveals the widespread existence of equilibria involving behavior t and resembles of pricing in the sense that aggressive price \overline{t} ing in the short run is associated with reduced via the long run $\mathcal{M}(\mathbf{r})$ predation-like behavior arises routinely and without requiring extreme or unusual parame-

terizations calls into α the idea that economic theory provides α theory provides α that predatory pricing is a rare phenomenon. The phenomenon \mathbf{q} $\overline{O}(N\bar{P})$ and $\overline{O}(N\bar{P})$ who establish analytically who establish analytically analytically $\overline{O}(N\bar{P})$ the possibility that predation-like behavior can arise in a model of learning-by-doing, and

Snider (2008), who uses the Ericson & Pakes (1995) framework to explore whether American Airlines engaged in predatory capacity expansion in the Dallas-Forth to Wichita market Worth to Wichi in the late 1990s. We go beyond establishing possibility by way of an example or a case study by way of an example or a case study by way of an example or a case study by way of an example or a case study by way of an exa $\Delta \mathbf{F} = \mathbf{F} \cdot \mathbf{F} \cdot \mathbf{F} = \mathbf{F} \cdot \mathbf{F} \cdot \mathbf{F}$ We moreover reinforce and formalize a point made by Edlin (2010) that predatory pricing

 $m \rightarrow m$ Finally, our analysis shows that there may be sensible way be sensible ways of disentangling efficiency--enhancing motives from predatory motives in pricing. From the menu of conduct restrictions, those that emphasize advantage denying as the basis for predation come closest to being $u_1 = f_1$ beneficial for consumers and society at large in both the short run and society at large in both the short run and society at large in both the short run and society at large in both the short run and society at the long run. In contrast to aggressive pricing behavior that is primarily driven by the benefits from a competitive advantage, aggressive pricing behavior that is primarily pricing behavior that is primarily pr driven by the benefits from preventing the rival from acquiring competitive advantage or accurring competitive advantage or accurring competitive advantage or accurring competitive advantage or accurring competitive advant overcoming competitive disadvantage is predatory. While there is predatory. While there is some latitude in where α exactly to draw the line between mere competition for efficiency on a learning curve and $\lim_{n \to \infty}$ and $\lim_{n \to \infty}$ and $\lim_{n \to \infty}$ predatory pricing, our analysis highlights that this distinction is closely related to that between advantage-building and advantage-denying motives. These motives, in turn, can be isolated and measured using our decomposition.

2 Model

 $\mathbf{Q}(\mathbf{F})$ predatory predatory predatory pricing is an inherently dynamic phenomenon, we consider a discrete-time, we consider a discrete-time, we consider a discrete-time, we consider a discrete-time, we consider a d

In addition, it incurs the setup cost *S*¹ in the current period. Potential entrant 1's decision to not enter the industry in state *′* is thus ¹ *′ , S*1) = 1 *S*¹ *≥ S*¹ *′*] , where *S*¹ *′* the critical level of the setup cost. The probability of potential entrant 1 not entering is 1 *′*) = 1 *− F^S S*¹ *′*)) and *before* potential entrant 1 observes a particular draw of the setup cost, its expected NPV is given by the Bellman equation *U*1 *′*) = *E^S* max { *S*1 *′ − S*1*,* }] = (1 *−* ¹ *′*)){ [*V*1(1*, e′* 2)(1 *−* ² *′*)) + *V*1(1*,* 0) ² *′*)] *− E^S S*¹ *S*¹ *≤ S*¹ *′*] } *,* (2) where *E^S S*¹ *S*¹ *≤ S*¹ *′*] is the expectation of the setup cost conditional on entering the 7 **Pricing decision of incumbent firm.** In the price-setting phase, the expected NPV of incumbent firm 1 is *V*¹) = max *p*1 ¹ *p*1*, p*² *,*) + ∑ **e** *′ U*1 *′*) Pr (*′ , D*¹ *p*1*, p*² *, , D*² *p*1*, p*² *,*) *.* (3) Because ∑ **e** *′* Pr (*′ ,*) = 1, we can equivalently formulate the maximization problem on the right-hand side of the Bellman equation () as max*p*¹ Π¹ *p*1*, p*² *,*), where Π¹ *p*1*, p*² *,*) = ¹ *p*1*, p*² *,*) + *U*¹ + ∑ **e** *′̸*=**e** [*U*1 *′ − U*¹] Pr (*′ , D*¹ *p*1*, p*² *, , D*² *p*1*, p*² *,*) is the long-run profit of incumbent firm 1. The first-order condition for the pricing decision *p*¹) of incumbent firm 1 is *∂π*¹ *p*1*, p*² *, ∂p*¹ + ∑ **e** *′̸*=**e** [*U*1 *′ − U*¹] *[∂]* Pr (*′ , D*¹ *p*1*, p*² *, , D*² *p*1*, p*² *,*)) *∂q*¹ *∂D*¹ *p*1*, p*² *, ∂p*¹ + ∑ [*U*¹ *− U*¹ *′*] *[∂]* Pr (*′ , D*¹ *p*1*, p*² *, , D*² *p*1*, p*² *,*)) *∂q*² *∂ −D*2) (*p*1*, p*² *, ∂p*¹ *,*

 7 See the Online Appendix for closed-form expressions for E $X_1|X_1 \ge X_1(\mathbf{e}')$ in equation (1) and E_S $S_1 | S_1 \le S_1(e')$ in equation (2).

e *′̸*=**e**

⁸Empirical studies show that organizations can forget the know-how gained through learning-by-doing due to labor turnover, periods of inactivity, and failure to institutionalize tacit knowledge (Argote, Beckman & Epple 1990, Darr, Argote & Epple 1995, Benkard 2000, Shafer, Nembhard & Uzumeri 2001, Thompson 2007). Besanko et al. (2010) show that organizational forgetting predisposes rms to price aggressively. Omitting organizational forgetting from the model therefore \stacks the deck" against nding predation-like behavior.

its stock of know-how and lowers its production cost in subsequent periods. Once the firm reaches state *m*, the learning curve "bottoms out" and there are no further experience-based cost reductions. 9 **Demand.** The industry draws customers from a large pool of potential buyers. In each period, one buyer enters the market and purchases one unit of either one of the "inside goods" that are offered by the incumbent firms at prices or an "outside good" at an exogenously given price *p*0. The probability that incumbent firm *n* makes the sale is given by the logit specification *qⁿ* = *Dⁿ*) = *−pⁿ* ∑² *^k*=0 exp(*−p ,* (6) where *σ >* 0 is a scale parameter that governs the degree of product differentiation. As *→* 0, goods become homogeneous. **Pricing decision of incumbent firm.** Figure illustrates the possible state-to-state transitions in our learning-by-doing model. ¹⁰ The long-run profit of incumbent firm 1 in equation () accordingly simplifies to Π¹ *p*1*, p*² *,*) = (*p*¹ *− c e*1))*D*¹ *p*1*, p*²)) + *U*¹ +*D*¹ *p*1*, p*²)) [*U*¹ *e*¹ + 1*, e*² *− U*¹)] + *D*² *p*1*, p*²)) [*U*¹ *e*1*, e*² + 1) *− U*¹)] *.* (7) Because Π¹ *p*1*, p*² *,*) is strictly quasiconcave in *p*¹ (given *p*²) and), the pricing decision *p*¹) is uniquely determined by a first-order condition analogous to equation (*mr*¹ *p*1*, p*²))*−c e*1) + [*U*¹ *e*¹ + 1*, e*² *− U*¹)] + Υ(*p*²)) [*U*¹ *− U*¹ *e*1*, e*² + 1)] = 0*,* (8)

⁹We obviously have to ensure $e_n \leq M$. To simplify the exposition we abstract from boundary issues in what follows.

 10 Formally, our learning-by-doing model is a special case of the general model with the probability that the industry's state changes from **e** to **e** *′* during the price-setting phase set to

Pr(
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e'
$$
| e ; q) = $\begin{cases} q_1 & \text{if } e' = (e_1 + 1; e_2); \\ q_2 & \text{if } e' = (e_1; e_2 + 1); \\ 1 - q_1 - q_2 & \text{if } e' = e; \end{cases}$

where q_n is the probability that incumbent r m *n* makes the sale as given in equation (6).

monopoly: firm 1 is incumbent, firm 2 is entrant

empty: both firms are entrants

Figure 1: Possible state-to-state transitions.

 $E \rightarrow \infty$

3 Equilibrium and computation

 \mathfrak{m} and cost specification is symmetric, we restrict ourselves to symmetric, we restrict ourselves to symmetric ourselves to symmetric, we restrict ourselves to symmetric, we restrict ourselves to symmetric ourselve Markov perfect equilibria in pure strategies of our learning-by-doing model. 14 as lows from the arguments in Doraszelski & Satterthwaite (2010). In a symmetric equilibrium, the decisions taken by $-e_1, e_2$ in the decisions to the decisions taken by firm e_1 e_2, e_1 are fixed to determine the value of firm e_2, e_1 We use the homotopy or path-following method in \mathbf{u} symmetric Markov perfect equilibria of our learning-by-doing model. Although it cannot be $\alpha \cdot \hat{f}$ and all equilibria, the advantage of this method is its ability to explore the ability to explore the advantage of this method is its ability to explore the advantage of this method is its ability to explore t equilibrium correspondence and search for multiple equilibria in a systematic fashion. To explain the homotopy method, consider a single equation $H(x)$ \rightarrow 0 in a unknown $H(x)$ \rightarrow variable *x* and a known parameter *ω*. To the extent that there is more than one *x* that $H x; l \to l$ $H^{-1} l \to x H x; l \to l$ $v \mapsto v$ and $v \mapsto H(x, l)$ is a condition as the equilibrium condition and of $u \mapsto u$ *H*^{−1} *!* $-xH x$; ℓ → ℓ } as the equilibrium correspondence. The equilibrium correspondence to the equilibrium correspondence to the equilibrium correspondence to the equilibrium correspondence to the equilibrium c the form of the form of x, l through (*x, w*) through (*x*)-space, and the seeks to the homotopy method seeks to the x \mathbf{t} S_{1} introducing and auxiliary variable *s* to define a parametric curve (*x s ; ! s*) *H*^{−1} *!* $-xH x$; ! → ff *H* $x s$; ! *s* →

 $\frac{\mathscr{O}H(X(S),!~(S)}{\mathscr{O}_X}X \cdot S \xrightarrow{\P} \frac{\mathscr{O}H(X(S),!~(S)}{\mathscr{O}_X}~] \cdot S \xrightarrow{\qquad}$ this differential equation \mathcal{X} and τ at the fath. The fact of solving the task of solving the equation $H(x;U)$ = τ to the task of solving this differential equation. This requires an initial condition in the cond form of a known point on the path. We may not be able to trace out a particular path in *H*^{−1} *!* = *x, ! H x, !* = 4**}**, and the miss some solutions to *H x, !* = 0, in not have an initial condition for it. \overline{C} computing the equilibria of our learning-by-doing model mirrors the above examples \overline{C} except that it is involved in the $\mathcal{L}(\omega)$ = 0 (ω) \rightarrow 0 (Bellman equations and $\mathcal{L}(\omega)$ optimality conditions), many variables = (**V**1*,* ¹*,* ¹*, ϕ*¹) (values and policies), and many parameters *ω* = (*ρ, σ, X, . . .*). 15 To explore the explore the explorer the explorer the explorer the explorer the explorer the explorer than α *−1 ω* −− \hat{u} , $\frac{1}{2}$, we compute slices of the model such a particular and model such a particular such a particular such as the model such as the mode progress ratio while holding the remaining parameters fixed. We denote a slice of the equilibrium correspondence along by *−*1

assesses its prospects in the industry. In this particular equilibrium, $_2(e_1, 0) = 1.00$ for $e_1 \in \{2, \ldots, 30\}$, so that the potential entrant does not enter if the incumbent firm has moved down from the top of its learning curve.

 19 The multiple closed communicating classes that may arise for a particular equilibrium are conceptually di erent from multiple equilibria. A closed communicating class is a set of states from which there is no escape once the industry has entered it. The transient distribution in period 1000 accounts for the probability of reaching any one of these classes, starting from state (1*,* 1) in period 0.

$$
\overline{p} \quad \frac{1}{p} \quad \frac{D_n \ p_1 \quad ;p_2}{D_1 \ p_1 \quad ;p_2 \quad \{D_2 \ p_1 \quad ;p_2} \quad p_n \quad :
$$

Performance. *Expected long-run consumer surplus:*

$$
CS^{\infty} \begin{array}{cc} \square & \infty & CS \\ e \end{array}
$$

 CS is consumer surplus in state CS $E \qquad \qquad \mathbf{r} \rightarrow \mathbf{r} \qquad \qquad \mathbf{r} \qquad \mathbf{r}$

$$
TS^{\infty}
$$
 $\begin{bmatrix} \overline{S}^{\infty} & \overline{S}^{\infty} \\ \overline{S}^{\infty} & \overline{S}^{\infty} \\ \overline{S}^{\infty} & \overline{S}^{\infty} \\ \overline{S}^{\infty} & \overline{S}^{\infty} \end{bmatrix}$;

 PS_n **is the producer surplus of firm** $n \times n$ in n 20 *Expected discounted consumer surplus:*

$$
CS^{NPV} \quad \stackrel{\infty}{\longrightarrow} \quad T \quad \quad T \quad \quad CS \quad : \\ T=0 \quad \quad e
$$

Expected discounted total surplus: TS^{NPV} $\sum_{n=1}^{\infty}$ $T = 0$ *T* ∑ **e** *T*¹ CS \overline{A}^2 *n*=1 *P Sⁿ .*

²⁰See the Online Appendix for expressions for *CS*(**e**) and *PS_n*(**e**).

	$\mathbf{A} \mathbf{F}$ and $\mathbf{A} \mathbf{F}$		3 H	$\mathbf{u} \cdot \mathbf{v}$	
$ABAB = AB$		3 F			

4.2 Equilibrium correspondence

5 Isolating predatory incentives

To detect the presence of predatory pricing, antitrust authorities routinely ask whether a \rm{fi} firm and the expectation of the expectation of \rm{h} and \rm{h} the exit of its rival. This sacrifice test thus views predation as an investment in monopolytic \mathfrak{m} **p** $\hat{\mathbf{H}}$ \mathbf{H} 1978). \mathbf{F} and \mathbf{F} are to test for sacrifice its to determine whether \mathbf{F} is to determine whether when \mathfrak{m} as suitably defined profit function is positive at the firm has positive at the firm has positive at the firm has \mathfrak{h} chosen, which indicates that the chosen price is less that maximizes price that maximizes profit. \mathcal{M} and \mathcal{M} is principal the showld incorporate \mathcal{M} in \mathcal{M} except \mathcal{M} is \mathcal{M} . The shock of \mathcal{M} is a set of \mathcal{M} is a s z_5 α ⁿ italics). The same same same sacrifice test and relate it to our model, we partition the profit α τ_1 Π_1 *p*₁*, p*₂ *j* τ_2 in equation (EEEC) into an everything-on-competition (EEEC) (EEEC) (EEEC) η in \int $\prod_{1}^{0} p_1$; p_2 Ω_1 *p*₁*, p*₂ *,* $-\text{H}_1$ **p**₁*,* **p**₂ *;* $\int_{1}^{0} p_1$; p_2 ; finition for definition reflection reflection $\frac{\mathscr{C}_{1}(p_{1}(e),p_{2}(e),e)}{\mathscr{C}_{p_{1}}}$ *@p*¹ $=$ librium, the sacrifice test *@* 0 1 (*p*1(**e**)*;p*2(**e**)*;***e**) *@p*¹ λ is equivalent to λ *− ∂*Ω¹ *p*¹ *, p*² *,* $\frac{\partial^2 P^2}{\partial p_1}$ *∂*Ω¹ *p*¹ *, p*² *, ∂ −p*₁ $>$ *:* (*8*) $\frac{1}{e}$ *−p*₁ *@* ¹(*p*1(**e**)*;p*2(**e**)*;***e**) *@*(*−p*1) is the marginal return to a price cut in the current period due to changes in the competitive environment. If \mathbf{f} is sacrificed, then inequality () tells us that is sacrificed, then in \mathbf{u} changes in the competitive environment are to the firm's advantage. In this sense, \mathbf{u} *@* ¹(*p*1(**e**)*;p*2(**e**)*;***e**) *@*(*−p*1) is the matrix of the matrix in monopoly profit in \mathfrak{m} in \mathfrak{m} in \mathfrak{m} and thus \mathbf{u} m the firm \mathbf{u} **f**₁ $\frac{\mathscr{P}_1(p_1(\mathbf{e}), p_2(\mathbf{e}), \mathbf{e})}{\mathscr{P}(-p_1)}$ **h f**₁ $\frac{\mathscr{P}_2(p_1(\mathbf{e}), p_2(\mathbf{e}), \mathbf{e})}{\mathscr{P}(-p_1)}$ and the EEEC plants of the EEEC profit functions of the EEEC profit functions of the EEEEC profit function. The EEEE S_{max} is equal profit from Edgine α Farrell (2004) α ple this profit function should incorporate everything except effects on competition, *but in practice sacrifice tests often use short-run data*, and we will often follow the conventional \mathbf{v} is shortland of calling its short-run profit \mathbf{m}_1^0 . The main profit \mathbf{m}_1^0 $\frac{0}{1}$ *p*₁*; p*₂ *j*

26

 $p_1 - c \, e_1 \, D_1 \, p_1, p_2$) to be short-run profit, it follows from the same same same same sacrifice test () $p_1 - p_2$ and p_3 $\frac{\mathscr{O}_{-1}(p_1(\mathbf{e}),p_2(\mathbf{e}),\mathbf{e})}{\mathscr{O}(-p_1)}$ > $\qquad \qquad$ \hat{p} of predatory incentives the advantage-building motives the and the advantage-denying motive:

 \mathbf{f} **b d** (showter-fire incentives are \mathbf{f} *T*₁ *e*₁ + 1*, e*₂ *- U*₁ + Υ p_2 $\qquad \bigcup_i U_1 - U_1 e_1; e_2 + \dots$

The sacrifice test based on Definition is equivalent to the inclusive price *mr*¹ *p*¹ *, p*²)) being less than *short-run* marginal cost *c e*1). ²⁷ Because *mr*¹ *p*¹ *, p*²)) *→ p*¹) as *→* 0, in an industry with very weak product differentiation it is also nearly equivalent to the classic Areeda & Turner (1975) test that equates predatory pricing with below-cost pricing and underpins the current *Brooke Group* standard for predatory pricing in the U.S.

2 DEP 2 C E 2 C E 1 1 1 1 1 1 model of profit maximization on the efficiency of the effect of the effect of the effect of the effect of the effe gains from pricing aggressively in order to move down the learning curve. Farrell & Katz (2005) argue forcefully that an action is predatory to the extent that it f in particular, p. 219 and as if it were operating in a α is the sense that the firm takes the firm takes the sense that the firm takes the firm takes of α as given the competitive position of its rival in the current period but ignores that its f can affect the evolution of the competitive position of the competitive position of its rival beyond the competitive position of f current period. We according the way $\frac{1}{2}$ is the warm $\frac{1}{2}$ $\$

 \mathbf{u} is reflected in \mathbf{u} is reflected in Fig.

off" the predatory incentives according to a particular definition. For example, Definition forces the firm to ignore ∑⁴ *^k*=1 Θ*^k* 1) = [*U*¹ *− U*¹ *e*1*, e*² + 1)] in setting its price, so the constraint is Ξ¹ *p*1*, p*² *,*) = *mr*¹ *p*1*, p*²))*−c e*1) + [∑⁵ *^k*=1 Γ *k* 1] = *mr*¹ *p*1*, p*²))*− c e*1)+[*U*¹ *e*¹ + 1*, e*² *− U*¹)] = 0. We use the homotopy method to compute the symmetric Markov perfect equilibria of the counterfactual game with a conduct restriction (according to a particular definition) in place. Comparing the SCP metrics between the counterfactuals and equilibria tells us how much bite the predatory incentives have.

6.1 Counterfactual and equilibrium correspondences

equilibrium *survives* the conduct restriction if, starting from = 1, the homotopy reaches the counterfactual correspondence. A surviving equilibrium smoothly deforms into a symmetric Markov perfect equilibrium of the counterfactual game by gradually tightening the conduct restriction. We say that an equilibrium is *eliminated* by the conduct restriction if the homotopy algorithm returns to the equilibrium correspondence. 33 F_{A} is distinguished and surviving equilibria for \mathbf{f} \hat{E} and \hat{E} aggressive equilibria that are associated with higher equilibria that are associated with higher expected long-run Herfindahl indices whereas the accommodative equilibria that are associated with lower expected long-run Herfindahl indices survive these conduct restrictions. By conduct restrictions. By contrast, some of the more aggressive equilibria survive Definitions and , along with all the more and , along with a
The more aggressive Definitions and , along with all the more all the more and , along with all the more an more accommodative ones. Nevertheless, Definitions and eliminate at least some of the To illustrate, for the baseline parameterization with = 0*.*75 all three equilibria (including the aggressive and accommodative and accommodative equilibria at the beginning of Section) survives α Definitions and . For = 0*.*8 one of the three equilibria survives these conduct restrictions; HHH^{∞} = 0 HHI^{∞} = 0.80 and HHI^{∞} = 0.80 and HHI^{∞} = 0.89 are eliminated. $F(x) = \frac{1}{2}$ the five equilibria survive; again the two most aggressive equilibria with the two most *HHI*∞ = *= 1<i>.* $\hat{\Pi}$ are general. The first row of $\hat{\Pi}$ are percentage of equilibrial shows the percentage of equilibrial s Δt are eliminated by a particular conduct restriction or survive it for the two-dimensional Δt \mathbf{r} , \mathbf{r} , \overline{X} , \overline{X} , and \overline{X} through the equilibrium correspondence. We restrict the equilibrium correspondence. We restrict the equilibrium correspondence. We restrict the equilibrium corresponden at the parameterization to parameterizations with multiple equilibria because if an equilibrium is unique, ω then (under some regularity conditions) it necessarily survives the conduct restriction. In line with F_{eff} and F_{eff} restrictions based on Definitions and \hat{E}_{eff} many more equilibria than the less severe conduct restrictions based on Definitions and The remaining rows of Table show how industry structure, conduct, and performance differ between eliminated and surviving equilibria. We report averages and standard deviations of the SCP metrics that equality weight parameterizations in order to compensate for α if at different parameterizations. The eliminated equilibria at different parameterizations. The eliminated equilibria at if have, on average, higher concentration, higher prices, and lower expected long-run consumer s_1 in the surviving equilibria. We say that \hat{H} is the relatively small exception \hat{H} \overline{X} , \overline{X} and also have, on average, lower expected long-run total long-run t surplus. This is because the eliminated equilibria more often than not involve an entrenched monopoly HHI^∞ = 1. The eliminated by a particular conduct restriction the long run than the long run than the equilibria than the equilibria that survive it, although α the standard deviations make clear that this is not the case for all parameterizations.

33

 $\frac{1}{\sigma}$

 $\frac{1}{\sigma}$

 $\frac{1}{\pi}$

 $\frac{1}{\sigma}$

³⁵*Barry Wright Corp. v. ITT Grinnell Corp.*, 724 F.2d 227, 234 (1st Cir. 1983).

 t merits of a particular definition of predation of predation on conceptual grounds, we directly measure \hat{u} the impact of the predatory industry industry structure, conductives on industry structure, conductives on industry structure, and performance. Conductives on industry structure, conductives on industry structure, and perf Our numerical analysis of a model of learning-by-doing shows that behavior resembling conventional notions of predatory pricing—aggressive pricing followed by reduced competition—arises routinely, thus casting doubt on the notion that predatory pricing is a myth and does not have to be taken seriously by antitrust authorities. A gressive equilibria involving predation-like behavior typically coexist with accommodative equilibria involving much less aggressive pricing. Multiple equilibria arise in our model α rise in our if, for given demand and cost fundamentals, there is more than one set of firms α is more set of firms α is α regarding the value of continued play that is consistent with rational expectations about equilibrium behavior and industry dynamics. A conduct restriction that forces a firm to ignore the predatory incentives in setting in setting in setting its price can short-circuit the expectation that α predatory pricing $\frac{w}{w}$ and in this way eliminate some $\frac{w}{w}$ and $\frac{w}{w}$ are even all

The conduct restrictions associated with the stronger Definitions and eliminate many more equilibria than the conduct restrictions associated with the weaker Definitions and 4bout

 $\begin{array}{ccc} \mathbf{1} & O & r & E & \mathbf{2} & \mathbf{4} \end{array}$

 \mathbf{A} Melamed, \mathbf{A} and other exclusionary conductance dealing agreements and other exclusionary conductance \mathbf{A} there unify $A_n \cdot r$, L , J , r_n , \bullet 3