

University of Tennessee College of Law

Legal Scholarship Repository: A Service of the Joel A. Katz Law Library

Book Chapters


Faculty Work

2012

What is Competition?

Maurice Stucke

Follow this and additional works at: https://ir.law.utk.edu/book_chapters

 Part of the [Antitrust and Trade Regulation Commons](#), [International Law Commons](#), and the [International Trade Law Commons](#)

2. What is competition?

Maurice E Stucke*

The financial crisis prompted in the United States unprecedented government bailouts for banks, mortgage servicers, the insurance giant AIG, and automotive makers General Motors and Chrysler. The crisis raised important issues of market failure, weak regulation, our lack of understanding of systemic risk in financial markets, and moral hazard. The crisis prompted policy-makers to re-examine fundamental issues such as the efficiency of markets and the role of legal, social, and ethical norms in a market economy.

The goals of antitrust and premises of its current neoclassical economic theories are also being re-examined.¹ After all, one well-recognized antitrust goal is ‘to avert the need for massive and ongoing government regulation or nationalization.’² The ‘overriding purpose of antitrust policy,’ wrote Professors Blake and Jones, ‘is to maintain an economy capable of functioning effectively without creating an abundance of supervisory

* Associate Professor, University of Tennessee College of Law, and Senior Fellow, American Antitrust Institute, USA. The author wishes to thank the participants of the Fifth Annual ASCOLA Conference for their helpful comments, and the University of Tennessee College of Law and the WW Davis Faculty Development Fund for the summer research grant. This chapter is based on a longer article ‘Reconsidering Competition’, University of Tennessee Legal Studies Research Paper No 123, *available at* <http://ssrn.com/abstract=1646151>.

¹ JT Rosch, Commissioner, Federal Trade Commission, ‘Managing Irrationality: Some Observations on Behavioral Economics and the Creation of the Consumer Financial Protection Agency’ (6 January 2010), <http://www.ftc.gov/speeches/rosch/100106financial-products.pdf>. Commissioner Rosch has been at the forefront in examining the applicability of behavioral economics to antitrust policy. S Kirchgassner, ‘Watchdog Turns to Old Rule in Antitrust Quest’ (26 March 2010), *Financial Times*; JT Rosch, Commissioner, Federal Trade Commission, ‘The Next Challenges for Antitrust Economists’ (8 July 2010), <http://www.ftc.gov/speeches/rosch/100708neraspeech.pdf>; ‘Behavioral Economics: Observations Regarding Issues That Lie Ahead’ (9 June 2010), <http://www.ftc.gov/speeches/rosch/100609viennaremarks.pdf>.

² LB Schwartz, “‘Justice’ and Other Non-Economic Goals of Antitrust’ (1979) 127 *University of Pennsylvania L Rev*, 1076, 1078.

political machinery.³ The bulk of business decisions should be controlled by the market, they wrote, not by government agencies (such as federal or state regulators, antitrust agencies acting through behavioral decrees or the courts) or by private firms exercising governmental prerogatives (such as monopolies or cartels).⁴

In light of the financial crisis and the behavioral economics literature, policy-makers should reconsider two fundamental questions: First, what is competition? Second, what are the goals of the competition laws? This chapter addresses the first question. Only in understanding competition can one understand what competition can achieve under certain circumstances.

The question, *What is competition?* seems so basic, that it need not be asked. But no satisfactory comprehensive definition of competition exists. Although some consider competition as an idealized end state (such as static price competition under the economic model of perfect competition) or as a dynamic process, any theory of competition will depend on its premises. This chapter shows how varying one assumption – the relative rationality of market firms and consumers – yields different conceptions of competition.

1 DEFINING COMPETITION

1.1 Common Definitions of Competition

One popular antitrust treatise states, “Today it seems clear that the general goal of the antitrust laws is to promote “competition” as the economist understands that term.”⁵ One problem, the treatise recognizes, is that lawyers and laypersons can have a different conception of competition than economists.⁶

Another problem is that economists have not reached consensus in defin-

³ HM Blake and WK Jones, ‘In Defense of Antitrust’ (1965) 65 *Columbia L Rev*, 377, 383.

⁴ HM Blake and WK Jones, ‘Toward a Three-Dimensional Antitrust Policy’ (1965) 65 *Columbia L Rev*, 422, 422.

⁵ PE Areeda and H Hovenkamp, *Antitrust Law: An Analysis of Antitrust Principles and Their Application* vol I, (3rd edn, 2006), para 100a, at 4 available at <http://www.aspenpublishers.com/Topics/Antitrust-Trade-Regulation/>; see also, American Bar Association, Section of Antitrust Law, ‘Report on Antitrust Policy Objectives’ (12 February 2003), <http://www.abanet.org/antitrust/at-comments/2003/reports/policyobjectives.pdf>.

⁶ Areeda and Hovenkamp, *Antitrust Law*, § 100a, 3.

ing *competition*. Although the United States' Sherman Act was enacted over a century ago, the law, as Judge Bork observed, 'has not arrived at one satisfactory definition of "competition."' ⁷ This is surprising. The concept of competition is central to competition policy and economic thinking in general. Competition law focuses on anti-competitive restraints, and one oft-described goal is to ensure an effective competitive process. ⁸ Yet the concept of competition, John Vickers said, 'has taken on a number of interpretations and meanings, many of them vague.' ⁹ Others agree. ¹⁰

Many argue over competition policy without clearly defining competition. Most jurisdictions 'maintain that their competition laws "preserve competition,"' observed the American Bar Association, but preserving

⁷ RH Bork, *The Antitrust Paradox: A Policy at War With Itself* (1978) 61.

⁸ Unilateral Conduct Working Group, International Competition Network, 'Report on the Objectives of Unilateral Conduct Laws, Assessment of Dominance/ Substantial Market Power, and State-Created Monopolies' (2007) 6, (hereinafter 2007 ICN Report) http://www.internationalcompetitionnetwork.org/media/library/unilateral_conduct/Objectives%20of%CC20Unilateral%CC20Conduct%CC20May%2007.pdf.

⁹ J Vickers, 'Concepts of Competition' (1995) 47 *Oxford Econ Papers*, 1, 3.

¹⁰ *US v Kennecott Copper Corp*, 231 F Supp 95, 103 (SDNY 1964) ('There is no one definition of competition. Economists do not agree over the meaning of the term nor do they agree how it can be achieved'); World Bank, *World Development Report 2002: Building Institutions for Markets* (2002) 140 (finding from survey of fifty countries' competition laws 'different conceptions of competition [. . .] across countries'); N Salvadori and R Signorino, 'The Classical Notion of Competition Revisited' (May 5, 2010), MPRA Paper No 22499, 2, <http://mpra.ub.uni-muenchen.de/22499/> (noting that few would disagree with Vickers' statement); ME Porter, 'Building the Microeconomic Foundations of Prosperity: Findings from the Business Competitive Index 2004' in CD Weller (ed), *Unique Value: Competition Based on Innovation Creating Unique Value* (2004) 64 (competitiveness 'remains a concept that is not well understood, despite widespread acceptance of its importance'); D Park, 'The Meaning of Competition: A Graphical Exposition' (1998) 29 *J Economic Education*, 347, 356 ('competition has become one of the most ambiguous concepts in economics'); JB Barney, 'Types of Competition and the Theory of Strategy: Toward an Integrative Framework' (1986) 11 *Acad Mgmt Rev*, 791, 798 (competition is 'a concept that can mean different things at different times to different firms'); MS Lewis-Beck, 'Maintaining Economic Competition: The Causes and Consequences of Antitrust' (1979) 41 *Journal of Politics*, 169, 171 (noting the 'lack, among economists, of a generally accepted definition of competition'); PJ McNulty, 'Economic Theory and the Meaning of Competition' (1968) 82 *Quarterly Journal of Economics*, 639, 639 ('probably no concept in all of economics that is at once more fundamental and pervasive, yet less satisfactorily developed, than the concept of competition'); GJ Stigler, 'Perfect Competition, Historically Contemplated' (1957) 65 *Journal of Political Economy*, 1 (noting that concept of competition was long treated with casualness); SN Barnes et al, *The Attorney General's National Committee to Study the Antitrust Laws* (1955) 318 ('idea of competition itself [. . .] is not so easy to define').

competition ‘does not always mean the same thing in different jurisdictions and is sometimes only one of several objectives pursued under a country’s antitrust law.’¹¹ The Chilean Competition Tribunal, for example, said, ‘the only objective of competition policy is to promote and protect competition,’ but then recognized that ‘one of the main difficulties is to define legally what “free competition means,” or to articulate why competition itself should be protected.’¹²

Competition, which can take different forms, is not annihilation. Some view competition in its natural setting as a cutthroat fight over scarce resources.¹³ But within animal ecology, genetics, and evolution, the term *competition* has multiple meanings.¹⁴ Antitrust policy, of course, does not encourage market participants in seeking scarce resources to maim or kill each other. Competition should not increase the death rate of one portion of the human population. Even within the animal kingdom, competition for scarce resources is not a prerequisite for ‘survival of the fittest,’ the natural selection of species.¹⁵

Competition, like athletic contests,¹⁶ involves cooperation through voluntary endeavors with suppliers, wholesalers, retailers, and consumers. Competition can be vertical among firms in the distribution chain. Manufacturers have a complementary and competitive relationship with firms from whom they buy and to whom they sell.¹⁷ Not surprisingly,

¹¹ American Bar Association, *Report on Antitrust Policy Objectives* (note 5 above).

¹² 2007 ICN Report (note 8 above). In 2004, when Chile’s Competition Act was amended, ‘the executive and legislative powers discussed whether “free competition” should be defined more narrowly as a right to participate in economic activities, a means of promoting economic efficiency, or a means of enhancing consumer welfare.’ The legislators, the ICN reported, ‘decided that the meaning of “free competition”, that is, an effective competitive process, should be left to the Tribunal’s interpretation, on a case-by-case basis.’

¹³ *RJ Reynolds Tobacco Co v Cigarettes Cheaper!*, 462 F 3d 690 (7th Cir 2006) (saying ‘cutthroat competition’ is a term of praise rather than condemnation and consumers gain when firms try to ‘kill’ the competition and take as much business as they can).

¹⁴ LC Birch, ‘The Meaning of Competition’ (1957) 91 *American Naturalist* 5, 6.

¹⁵ Birch, *Competition*, 13.

¹⁶ *National Collegiate Athletic Assn v Board of Regents of University of Oklahoma*, 468 US 85 (1984).

¹⁷ RL Steiner, ‘Market Power in Consumer Goods Industries’, in A Ezrachi and U Bernitz (eds), *Private Labels, Brands, and Competition Policy: The Changing Landscape of Retail Competition* (2009); Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings (2004/C 31/03) (‘The competitive pressure on a supplier is not only exercised by competitors but can also come from its customers’), <http://>

two of Michael Porter's five competitive forces¹⁸ impacting a company's profits are vertical: (i) powerful customers seeking to 'capture more value by forcing down prices, demanding better quality or more service (thereby driving up costs), and generally playing industry participants off against one another, all at the expense of industry profitability' and (ii) powerful suppliers seeking to 'capture more of the value for themselves by charging higher prices, limiting quality or services, or shifting costs to industry participants.'

Competition is also normative. Market participants through the legislature, industry codes, or informal norms set the rules and punishments. Competition authorities distinguish between 'competition on the merits' and unfair methods of competition.¹⁹ Those terms, subject to different interpretations,²⁰ imply that competition can be good or bad, based on society's 'generalized standards of fairness and social utility.'²¹ At times businesses and politicians decry competition as 'ruinous' or 'cutthroat.'

Policy-makers when referring to competition often cite its effects, such as 'low prices, high quality products, a wide selection of goods and services, and innovation.'²² But the effects do not define competition, since the effects at times are inconsistent. Higher prices and reduced output generally are 'the paradigmatic examples of restraints of trade that the Sherman Act was intended to prohibit.'²³ Competition can lead to greater

eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=en&numdoc=52004XC0205%2802%29&model=guicheti.

¹⁸ ME Porter, 'The Five Competitive Forces That Shape Strategy' (Jan 2008) *Harv Bus Rev* 79, 82, 83.

¹⁹ 15 USC § 45(a) (prohibiting 'unfair or deceptive acts or practices in or affecting commerce'); *FTC v Sperry & Hutchinson Co*, 405 US 233, 244 (1972) ('unfair competitive practices were not limited to those likely to have anticompetitive consequences after the manner of the antitrust laws; nor were unfair practices in commerce confined to purely competitive behavior').

²⁰ Organisation for Economic Co-operation and Development (OECD), 'Policy Brief: What Is Competition on the Merits?' (2006), 1, www.oecd.org/dataoecd/10/27/37082099.pdf (noting that the expression 'competition on the merits' has 'never been satisfactorily defined', which has 'led to a discordant body of case law that uses an assortment of analytical methods', which has 'produced unpredictable results and undermined the term's legitimacy along with policies that are supposedly based on it').

²¹ *Restatement (Third) of Unfair Competition* (1995) § 1 at 9.

²² European Commission Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings (2008/C 265/07); *Northern Pacific Railway Co v US*, 356 US 1, 4 (1958).

²³ *National Collegiate Athletic Assn v Board of Regents of University of Oklahoma*, 107–8.

product homogeneity, less choice, and less innovation. A monopolist may offer greater variety than firms in a competitive market.²⁴ At times, greater innovation comes from excluding others from making, using, or selling the patented invention, resulting in higher-priced goods.²⁵ At times, increased price competition (for example, intra-brand competition²⁶) leads to more free-riding, less services and innovation, and ultimately fewer choices and firms.²⁷ Winner-take-all competition can lead to fewer competitors and little competition for prices, services, or innovation.²⁸

Many view competition as rivalry: ‘the effort of two or more parties acting independently to secure the business of a third party by offering the most favorable terms.’²⁹ Others question this characterization. Increasing the number of rivals does not always increase, and can diminish, incentives to compete.³⁰ ‘An economist sees competition not in terms of rivalry per se, but in terms of market performance,’ said a former DOJ official. ‘An economist would say that a market is perfectly competitive when firms price their output at marginal cost and costs are minimized by internal effi-

²⁴ Some argue that a monopolist may more likely offer a broader array of programming than if radio outlets were independently owned. PO Steiner, ‘Program Patterns and Preferences, and the Workability Competition in Radio Broadcasting’ (1952) 66 *Quarterly Journal of Economics*, 194, 212–17.

²⁵ HR Rep No 60-2222, at 7 (1909) (discussing tradeoff in how copyright law confers a benefit upon the public that outweighs the evils of the temporary monopoly); see also, *Pfaff v Wells Elecs, Inc*, 525 US 55, 63 (1998).

²⁶ *Continental TV, Inc v GTE Sylvania, Inc*, 433 US 36 (1977).

²⁷ *Leegin Creative Leather Prods, Inc v PSKS, Inc*, 127 S Ct 2705 (2007).

²⁸ US Department of Justice and Federal Trade Commission, ‘Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition’ (17 Apr 2007), 34 (discussing how firms vigorously compete in winner-take-all standards wars to establish their own technology as de facto standards), <http://www.justice.gov/atr/public/hearings/ip/222655.htm>.

²⁹ ‘Competition’ (2010), Merriam-Webster Online Dictionary retrieved July 25, 2010, <http://www.merriam-webster.com/dictionary/competition>; *US v Aluminum Company of America* 91 F Supp 333, 355 (SDNY1950) (‘Commercial competition, theoretically, is the independent endeavor of two or more persons or organizations within the realm of a chosen market place, to obtain the business patronage of others by means of various appeals, including the offer of more attractive terms or superior merchandise.’); *Lipson v Socony Vacuum Corp*, 87 F2d 265, 270 (1st Cir 1937) (defining competition as the ‘effort of two or more parties, acting independently, to secure the custom of a third party by the offer of the most favorable terms.’ ‘The struggle between rivals for the same trade at the same time.’); *New England Theatres, Inc v Lausier*, 86 F Supp 852, 856 (D Me 1949); *US v Sutherland* 9 F Supp 204, 205 (WD Mo 1934); Barnes et al, *Antitrust Laws*, 318 (one conception of competition is ‘the self-interested and independent rivalry of two or more private competitors’).

³⁰ A Tor and SM Garcia, ‘The N-Effect: Beyond Winning Probabilities’ (9 Nov 2009) *Psychological Science*.

ciency. This does not necessarily require a large number of rivals. Where entry and exit are costless, markets can be perfectly competitive even with only one firm serving the entire market.³¹ He characterized competition as ‘the process by which market forces operate freely to assure that society’s scarce resources are employed as efficiently as possible to maximize total economic welfare.’³²

Within antitrust, two popular conceptions of competition are as an ideal end-state (perfect competition) and a process (dynamic competition).³³ Perfect competition, according to some, is ‘the most competitive market imaginable in which everybody is a price taker.’³⁴ In the perfectly competitive market, ‘buyers and sellers are so numerous and well informed that each can act as a price taker, able to buy or sell any desired quantity without affecting the market price.’³⁵ Between perfect monopoly and perfect competition are degrees of imperfect competition.

Others, like FA Hayek, dispute this characterization of competition.³⁶ Competition by its nature is not an end state but a dynamic process. The competitive process is complex and unpredictable. The imperfections and limitations of human knowledge and the variety of conditions intrinsic to or affecting markets (including legal, social and ethical norms, technology, production, and service norms) necessitate against either perfect competition or a centrally planned economy. One complaint is that US competition officials recognize the importance of dynamic competition for a country’s long-term economic growth, but that antitrust law has ossified around static price competition.³⁷

³¹ WJ Kolasky, Deputy Assistant Attorney General, Antitrust Div., US Department of Justice, ‘What Is Competition?’ (28 October 2002), http://www.justice.gov/atr/public/speeches/200440.htm#N_7_.

³² *Ibid.*

³³ M Blaug, ‘Is Competition Such a Good Thing? Static Efficiency versus Dynamic Efficiency’ (2001) 19 *Review of Industrial Organization*, 37, 37 (noting distinction goes to early history of economics).

³⁴ ‘Competition’ The Economist, Research Tools, Economics A–Z, <http://www.economist.com/RESEARCH/ECONOMICS/alphabetic.cfm?letter=C#competition>.

³⁵ J Black, *A Dictionary of Economics* (1997) 348; WJ Kolasky, ‘What Is Competition? A Comparison of US and European Perspectives’ (2004) 49 *Antitrust Bull.*, 29, 31.

³⁶ FA Hayek, *Individualism and Economic Order* (1948); see also, 2007 ICN Report, 28 (noting that 10 of 32 surveyed competition agencies focused on fostering a competitive process that is dynamic in nature).

³⁷ ME Porter, ‘Competition and Antitrust: A Productivity-Based Approach’ in CD Weller (ed), *Unique Value* (n 10 above), 154, 157 (‘While protecting short-run consumer welfare measured by price-cost margins is undeniably important,’

Ultimately, competition occurs (i) on various dimensions (such as price, quality, variety, innovation) across markets, (ii) with different levels of product differentiation, entry barriers, and transparency, (iii) at different stages of the product life cycle, (iv) with different demands for technological innovation, and (v) operating at different levels of efficiency.

1.2 Understanding the Assumptions Underlying Competition

One explanation of why competition has multiple meanings is that any theory of competition depends on its premises, which can vary. Among the assumptions in any conception of competition are (i) the rationality of the market participants, (ii) the amount of information they have, (iii) the transaction costs and the speed of transactions, (iv) the degree to which market participants act independently of one another and care about the interests of third parties, and (v) the role of formal rules and informal social, ethical, or moral norms in affecting the market participants' behavior.

This chapter focuses on one important assumption, namely the extent to which firms and consumers are rational and act with perfect willpower.³⁸ To simplify, the chapter treats firms as sellers and consumers as buyers. One could extend the analysis to the rationality of intermediaries (e.g., suppliers, wholesalers, and retailers) and government regulators (which scenario IV discusses).

2 FOUR CONCEPTIONS OF COMPETITION

Rational perfectly informed persons with willpower can take care of themselves in the marketplace. In relaxing the assumption, one cannot assume that the invisible hand will necessarily yield the best outcome. Markets,

productivity growth through innovation, 'where innovation is defined broadly to include not only products, but also processes and methods of management' is 'the single most important determinant of long-term consumer welfare and a nation's standard of living'); JT Rosch, Commissioner, Federal Trade Commission, 'Promoting Innovation: Just How "Dynamic" Should Antitrust Law Be?' (23 March 2010) (observing that antitrust enforcement 'has historically focused more on static than dynamic analysis'), <http://www.ftc.gov/speeches/rosch/100323uscremarks.pdf>.

³⁸ For the normative and descriptive shortcomings of the third prong of rational choice theory, namely that individuals pursue solely their economic self-interest, see ME Stucke, 'Money, Is That What I Want? Competition Policy & the Role of Behavioral Economics' (2010) 50 *Santa Clara L Rev*, 893.

Table 2.1 Four scenarios of competition

	Consumers – Rational	Consumers – Bounded Rational
Firms – Rational	I.	II.
Firms – Bounded Rational	III.	IV.

where participants have bounded rationality and willpower, can lead to undesirable outcomes. Moreover, consumers may be relatively more or less rational than firms. Thus our conception of competition can vary under the following four scenarios (see Table 2.1):

2.1 Scenario I: Both Firms and Consumers are Rational

The first scenario reflects neoclassical economic theory. A perfectly competitive market assumes transparent prices, highly elastic demand curves, easy entry and exit, and perfectly informed rational profit-maximizing producers and consumers. Price will equal marginal cost, and the market will produce the efficient level of outputs with the most efficient techniques, using the minimum quantity of inputs.

But perfect competition, critics have long argued, cannot serve as the policy-maker's conception of competition. First, as Judge Posner observed, 'No market fits the economist's model of perfect competition.'³⁹ Second, the model is inconsistent with our conception of competition in the real world, as it says little about productive and dynamic efficiency.⁴⁰ Imagine the reaction in an Ivy-League MBA program where perfect competition is the idealized end-state. If true, perfect competition would render the students' services and future employers' products as fungible and their high tuition unnecessary. Instead, for MBA students, competition 'is a perpetual flight from the zero-profit abyss.'⁴¹ Third, the model,

³⁹ *FTC v Elders Grain, Inc*, 868 F 2d 901, 907 (7th Cir 1989).

⁴⁰ Vickers, *Competition*, 7; DC North, 'Economic Performance Through Time' (1994) 84 *Am Econ Rev*, 359, 359 ('Neoclassical theory is simply an inappropriate tool to analyze and prescribe policies that will induce development.'). Hayek, *Individualism*, 96 ('Advertising, undercutting, and improving ("differentiating") the goods or services produced are all excluded by definition – "perfect" competition means indeed the absence of all competitive activities.').

⁴¹ MA Adelman, 'Economic and Legal Concepts of Competition' (1959) 41 *J of Farm Economics*, 1197, 1197. For an excellent recent discussion, see DR Desai and SW Waller, 'Brands, Competition and the Law' (Feb 1, 2010), <http://ssrn.com/abstract=1545893>.

which idealizes homogeneity in products and knowledge, is far from desirable. Who wants to live in a world where after providing homogenous goods and services, we drive homogenous cars to our homogenous homes? Fourth, perfect competition can lend itself to the dispensability of competition. As George Stigler observed, a ‘perfect market may also exist under monopoly.’⁴² Logically monopolies can be private or government enterprises. If the latter, a state planner could model scenarios using the hypothetical profit-maximizer and centrally plan the same outcome. Because rational profit-maximizing behavior is predictable, a temptation exists to nudge competition closer to perfect competition under ‘the guiding hand of some elite corps of governmental and non-governmental policy-makers.’⁴³

Perfect competition is neither descriptive nor normative. One can see several gradations of knowledge and rationality. An economic model can assume idealized conditions: market participants are perfectly rational with perfect knowledge of the conditions of supply and demand. Under these conditions, market participants ‘are supposed to know absolutely the consequences of their acts when they are performed, and to perform them in the light of the consequences.’⁴⁴

The next gradation is rational actors with incomplete knowledge. Imperfect information and informational asymmetries can lead to ‘lemon’ markets where dishonest dealers for goods or services drive out honest dealers,⁴⁵ thereby inhibiting innovation. The trickier aspect is the descent to bounded rational actors with imperfect willpower, who act with incomplete knowledge.

What are scenario I’s implications on our conception of competition? The stronger the presumption of rationality, the argument goes, the more likely the market is perceived in becoming more efficient, the less need for governmental intervention into the marketplace. Even if one assumes rational consumers and firms, it does not follow that the government does little.

First, the government must address the commonly identified types of market failure, such as: (i) the exercise of market power (e.g., raising prices above, and reducing output below, competitive levels); (ii)

⁴² Stigler, *Perfect Competition*, 14.

⁴³ Blake and Jones, *Defense of Antitrust*, 378.

⁴⁴ Stigler, *Perfect Competition*, 12 (quoting F Knight, *Risk, Uncertainty and Profit* (1921)).

⁴⁵ *FTC v Winsted Hosiery Co*, 258 US 483, 494 (1922); GA Akerlof, ‘The Market for “Lemons”: Quality Uncertainty and the Market Mechanism’ (1970) 84 *Q J of Econ*, 488, 495.

externalities, where the ‘cost or benefit arising from any activity which does not accrue to the person or organization carrying on the activity’;⁴⁶ (iii) public goods (e.g., national defense), whereby the payers for the goods cannot exclude the non-payers from consuming (or benefitting) from the goods; and (iv) significant informational asymmetries or uncertainty.⁴⁷ The government can increase price transparency, reduce informational asymmetries and transaction costs, prosecute common-law fraud and anticompetitive restraints of trade, and enjoin mergers to monopoly.

Second, competitive markets do not always yield the best or desired outcome. ‘It is *not* a correct deduction from the Principles of Economics that enlightened self-interest always operates in the public interest.’⁴⁸ Unbridled capitalism, Professors Akerlof and Shiller write, ‘does not automatically produce what people really need; it produces what they *think* they need, and are willing to pay for.’⁴⁹ It can maximize output of snake oil or products that eventually wipe out the economy.⁵⁰

Third, the government must address behavior that is individually rational but collectively irrational. In examining the financial crisis, for example, Judge Posner described how rational self-interested behavior of ‘law-abiding financiers and consumers can precipitate an economic disaster.’⁵¹ Self-interest, for Posner, is a private virtue in that competition drives businesses to profit maximization, which drives economic progress. But competitive self-interested behavior can be, at times, a public vice. An overleveraged financial institution may ignore the small probability that its risky conduct in conjunction with its competitors’ risky conduct may bring down the entire economy. Each firm in pursuing its self-interest will incur greater leverage to maximize profits. So even for rational-choice theorists like Posner, the government must serve as a countervailing force to such self-interested rational private behavior by better regulating financial institutions.

⁴⁶ Black, *Dictionary*, 168.

⁴⁷ <http://www.economist.com/research/economics/alphabetic.cfm?letter=M#marketfailure>.

⁴⁸ JM Keynes, ‘The End of Laissez-Faire’, in *Essays in Persuasion* (1932) 36; JE Stiglitz, *Freefall: America, Free Markets, and the Sinking of the World Economy* (2010), 273.

⁴⁹ GA Akerlof and RJ Shiller, *Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters For Global Capitalism* (2009), 26.

⁵⁰ Akerlof and Shiller, *Animal Spirits*, 26.

⁵¹ RA Posner, *A Failure of Capitalism: The Crisis of '08 and the Descent into Depression* (2009), 107; see also at 111–12.

2.2 Scenario II: Rational Firms and Bounded Rational Consumers

Here rational firms compete to exploit or help consumers with bounded rationality and willpower.

The behavioral economics literature has critiqued for decades the neo-classical economic theories' 'rationality' assumption as being unrealistic. Actual behavior – characterized as bounded rationality, willpower and self-interest – may vary from rational choice's predicted outcome.⁵² For example, consumers with bounded willpower sacrifice their desired long-term interests (such as increased savings) for immediate consumption (and increased debt).⁵³ Consumers lack the willpower to choose options with immediate costs that provide long-term benefits (e.g., exercising) over activities with immediate rewards but little long-term benefits (e.g., watching television).

Rational credit card companies, for example, can capitalize on consumers' bounded willpower in two ways: first, they can compete in ways to encourage consumers to charge more (and maximize fees for the banks). Competition will profit the rational firms but leave consumers increasingly miserable with greater debt. Or they can compete in helping consumers achieve their long-term interests by providing them with commitment devices. Banks, for example, can offer credit cards that reward consumers to save more. Consumers in their dispassionate state can elect to cap subsequent credit card purchases for certain categories of goods or services (e.g., not spending more than \$5 per week on Starbucks coffee).⁵⁴

Why wouldn't rational firms always exploit these consumers? One factor is rational firms' ability to identify consumers with weaker rationality and willpower. Identifying such consumers can be a business unto itself.⁵⁵ Rational firms can target bounded rational consumers by offer-

⁵² D Kahneman, 'Maps of Bounded Rationality: Psychology for Behavioral Economics' (2003) 93 *Am Econ Rev*, 1449, 1456–57 (describing biases including prospect theory where individuals favor risk aversion for gains, favor risk seeking for losses, and most importantly suffer loss aversion, whereby the dissatisfaction in actually losing money from a reference point (say \$100) is greater than the satisfaction in winning that sum of money).

⁵³ N Welch, 'A Marketer's Guide to Behavioral Economics' (Feb 2010), McKinsey Quarterly, http://www.mckinseyquarterly.com/A_marketers_guide_to_behavioral_economics_2536.

⁵⁴ D Ariely, *Predictably Irrational: The Hidden Forces That Shape Our Decisions* (2008).

⁵⁵ B Stone, 'Banks Mine Data and Woo Troubled Borrowers' (22 Oct 2008), *New York Times* at B1 (credit rating agency Equifax advertising "'advanced profiling techniques" to identify people who show a "statistical propensity to acquire new credit" within [ninety] days').

ing to help them with their earlier problems. Fraudsters target victims of earlier fraud by offering to help them sell their time shares, prevent home foreclosures, or improve their credit rating.

Even if rational firms identify bounded rational consumers, they cannot always exploit them. For example, rational investors may know of other investors' irrationality (such as buying a company's stock on hope that past price increases will continue with future price increases). The rational investor may want to 'short' the company's stock to profit when the stock price declines. The rational trader, however, cannot determine when the bubble will burst. Rational traders, due to investor pressure, may also be subject to short-term horizons, and follow the herd for short-term gains.

Myriad examples exist of behavioral exploitation. The UK's Office of Fair Trading (OFT) recently experimented how consumers made more mistakes and were worse off under five common price frames: (i) 'drip pricing,' where a lower price is initially disclosed to the consumer and additional charges are added as the sale progresses; (ii) 'sales,' where the 'sales' price is referenced off an inflated regular price (was \$2, now \$1); (iii) 'complex pricing' (e.g., three-for-two offers), where the unit price requires some computation; (iv) 'baiting,' where sellers promote special deals with only a limited number of goods available at the discounted price; and (v) 'time limited offers,' where the special price is available for a short period.⁵⁶ The OFT experiment found drip pricing and time-limited offers particularly detrimental.

What are scenario II's implications on our conception of competition? First, it draws into question the theory of revealed preferences. Economists historically assessed people's preferences, not by their subjective beliefs or intentions, but by their actual choices.⁵⁷ Looking at people's choices was considered a more objective way to infer individuals' utility. But if heuristics and biases systematically appear in human decision-making, this casts doubt on primarily using consumers' choices to measure consumer utility.⁵⁸ At times consumers predict poorly what will make them happy;

⁵⁶ Office of Fair Trading, 'The Impact of Price Frames on Consumer Decision Making' (May 2010), http://www.oft.gov.uk/shared_offt/economic_research/OFT1226.pdf.

⁵⁷ 'Revealed Preference' in The Economics A–Z, *The Economist*, <http://www.economist.com/research/economics/alphabetic.cfm?letter=R#revealedpreference>.

⁵⁸ E Garcés, 'The Impact of Behavioral Economics on Consumer and Competition Policies' (2010) 6 *Competition Policy International*, 145, 148; G Loewenstein and PA Ubel, 'Hedonic Adaptation and the Role of Decision and Experience Utility in Public Policy' (2008) 92 *J Pub Econ*, 1795; D Kahneman and AB Krueger, 'Developments in the Measurement of Subjective Well-Being' (2006) 20 *J Econ Persp*, 3, 3–4; BS Frey and A Stutzer, 'What Can Economists Learn from Happiness Research?' (2002), 40 *J Econ Lit*, 402, 404–5.

at other times, firms, through advertising and promotions, manipulate consumer preferences.⁵⁹ So Professors Kahneman and Krueger write, ‘If people display bounded rationality when it comes to maximizing utility, then their choices do not necessarily reflect their “true” preferences, and an exclusive reliance on choices to infer what people desire loses some of its appeal.’⁶⁰ Rather than infer utility from observed choices, they seek to measure directly individuals’ subjective well-being.⁶¹

A second implication of scenario II is distinguishing when firms are exploiting or helping bounded rational consumers. Take for example Christmas club savings accounts. Bank customers deposit sums into a Christmas account (which does not offer a superior interest rate) and cannot withdraw the funds until the Christmas holidays. One could view Christmas accounts as exploitative: customers get less (in terms of interest rate and liquidity); banks get more (longer time horizon to use customers’ funds without risk of withdrawals). Rational consumers with willpower would invest in risk-free illiquid funds with better yields (e.g., certificates of deposit) or keep the funds in their savings accounts. But Christmas accounts provided consumers a commitment device and divisibility (namely a separate account earmarked for Christmas shopping).⁶²

A third implication of Scenario II is another type of market failure, namely systemic behavioral exploitation.⁶³ In competitive markets under Scenario II, one would expect rational firms to inform bounded rational consumers of other firms’ attempts to exploit them. Providing this information is another facet of competition: trust us, we won’t exploit you. But too frequently competitors – rather than inform consumers or regulators – engage in similar exploitation.⁶⁴ We see this with ‘drip pricing’ for con-

⁵⁹ JK Galbraith, *The Affluent Society* (1998).

⁶⁰ Kahneman and Krueger, *Subjective Well-Being*, 3.

⁶¹ *Ibid* at 18–21 (proposing U-index measure of the proportion time an individual spends in an unpleasant state).

⁶² RH Thaler, ‘Mental Accounting Matters’, in CF Camerer et al (eds) *Advances in Behavioral Economics* (2004), 75.

⁶³ M Huffman, ‘Bridging the Divide? Theories for Integrating Competition Law and Consumer Protection’ (2010) 6 *European Competition J*, 7, 17–18. Professor Huffman’s article on how behavioral exploitation may produce longer lasting consumer harm prompted an interesting roundtable discussion among competition law lawyers, economists, and policy officials. ‘Antitrust Marathon IV: With Authority – A discussion led by Philip Marsden and Spencer Weber Waller’ (2010) 6 *European Competition J*, 1–127.

⁶⁴ *Eastman Kodak Co v Image Tech Servs, Inc*, 504 US 451, 474 n 21 (1992) (noting that ‘in an equipment market with relatively few sellers, competitors may find it more profitable to adopt Kodak’s service and parts policy than to inform the consumers’); *Ford Motor Co v FTC*, 120 F2d 175 (6th Cir 1941) (Ford following

sumers of airline tickets,⁶⁵ car rentals,⁶⁶ and prepaid telephone calling cards.⁶⁷ Companies do not seek to build trust for their business; instead they reduce price transparency and increase the complexity of their products (or product terms) to make price comparisons more difficult. At times, consumers are disclosed the information, but fail to comprehend or act on it.⁶⁸

A fourth implication of scenario II is how the government responds to behavioral exploitation. If consumers choose poorly, one assumption is that the government by default decides for them. But in displacing individual autonomy, the government does not help consumers improve their willpower or rationality. Instead, consumers become more dependent on the government.

As the behavioral experiments show, the government has more options, some less paternalistic than others, to prevent behavioral exploitation while leaving room for innovation that benefits consumers.⁶⁹ As I elaborate elsewhere,⁷⁰ the government can:

industry leader General Motors in advertising deceptive financing plan); M Bennett et al, 'What Does Behavioral Economics Mean for Competition Policy?' (2010) 6 *Competition Policy International*, 111, 118; Garcés, 'Behavioral Economics', 150; RL Steiner, 'Double Standards in the Regulation of Toy Advertising' (1988) 56 *Cincinnati L Rev*, 1259, 1264.

⁶⁵ The airlines' ingenious surcharges for pieces and weight of luggage, phone reservation fees, meals, beverages, headsets, extra leg room, etc, are often not quoted in the initial displayed price, but added when consumers later complete their purchase. A Altman and K Pickert, 'New Airline Surcharge: A Bag Too Far?' (22 May 2008), *Time*, <http://www.time.com/time/business/article/0,8599,1808804,00.html>.

⁶⁶ The FTC required the rental car operators to disclose upfront to consumers the existence of any mandatory fuel charges, airport surcharges or other charges not reasonably avoidable by consumers. *Re Dollar Rent-A-Car*, 116 FTC 255 (1993); *Re Value Rent-A-Car*, 116 FTC 245 (1993); *Re Alamo Rent-A-Car, Inc*, 111 FTC 644 (1989); *Re General Rent-A-Car Systems, Inc*, 111 FTC 694 (1989).

⁶⁷ Press Release, 'FTC Settlement Reins in New York-based Prepaid Calling Card Distributor: Crackdown on the Industry Has Yielded More Than \$4 Million' (20 May 2010), <http://www.ftc.gov/opa/2010/05/diamondphone.shtm>.

⁶⁸ FTC, 'Improving Consumer Mortgage Disclosures: An Empirical Assessment of Current and Prototype Disclosure Forms: A Bureau of Economics Staff Report' (June 2007), <http://www.ftc.gov/opa/2007/06/mortgage.shtm>.

⁶⁹ For behavioral economics' policy implications on the role of government see generally RH Thaler and CR Sunstein, *Nudge: Improving Decisions About Health, Wealth, and Happiness* (2008) 78; EL Glaeser, 'Paternalism & Psychology' (2006) 73 *U Chi L Rev*, 133, 140–41, 144–46; G Mitchell, 'Libertarian Paternalism Is an Oxymoron' (2005) 99 *Nw U L Rev*, 1245; C Camerer et al, 'Regulation for Conservatives: Behavioral Economics and the Case for "Asymmetric Paternalism"' (2003) 151 *U Pa L Rev*, 1211.

⁷⁰ Stucke, *Reconsidering Competition*.

- (i) enable consumers, individually or collectively, to take private action to challenge behavioral exploitation;
- (ii) alter existing, or create new, default rules (e.g., requiring consumers to opt into (rather than having to opt out of) banks' overdraft programs);
- (iii) require consumers to choose among the options (e.g., the European Commission's recent settlement with Microsoft, where Windows consumers must choose their web browser);
- (iv) educate consumers using framing, prospect theory, and the availability heuristic to make the information more salient (e.g., telling the credit card consumer in the monthly statement how paying only the minimum will increase the amount of interest she pays and the time to repay the balance);
- (v) set one option as the default, but impose procedural constraints on opting out (e.g., requiring consumers under the age of 21 before opening a credit card account to have a co-signer who has the means to repay and will be jointly liable for the credit card debt); or
- (vi) afford purchasers a cooling-off period (e.g., the right within three days to cancel unsolicited home purchases).

If these options do not curb behavioral exploitation, the government can limit consumer choices or prohibit the exploitive conduct altogether.

Accordingly, under any conception of competition with bounded rational consumers, one cannot view competition policy and consumer protection as separate functions. Under scenario II, both serve to promote the opportunity of informed consumers to choose among innovating firms' solutions for their problems.

2.3 Scenario III: Bounded Rational Firms and Rational Consumers

Here consumers are more rational than firms in the industry.⁷¹ Looking at the firms' irrational behavior, consumers ask, 'What were they thinking?' One recurring theme in the business literature is how once mighty

⁷¹ For scenarios III and IV, one must distinguish between economists' conception of rationality and what others view as rational. R Pittman, 'Who Are You Calling Irrational? Marginal Costs, Variable Costs, and the Pricing Practices of Firms', DOJ Economic Analysis Group Discussion Paper 09-3 (July 2009); D Kahneman et al, 'Fairness as a Constraint on Profit Seeking: Entitlements in the Market' (1986) 76 *Am Econ Rev*, 728, 735.

firms (e.g., the US car manufacturers⁷²) lose sight of their customers' needs or are in denial.⁷³

This scenario may explain why corporate executives, with so much to lose, risk criminal liability by fixing prices with their competitors,⁷⁴ and are overconfident about a merger's likely efficiencies or their chances of entering particular markets.⁷⁵ Executives, in behavioral studies, were overconfident in their ability to manage a company, systematically underestimated their competitors' strength, and were prone to self-serving interpretations of reality (e.g., taking credit for positive outcomes and blaming the environment for negative outcomes).⁷⁶ This scenario also includes other times when firms, unlike rational profit-maximizers, are more risk averse in entering markets.

What are scenario III's implications on our conception of competition? This Scenario in theory should be of less concern. Absent a natural monopoly or high-entry barriers, rational consumers take their business elsewhere. Irrational firms exit the marketplace.

But this is not always true. The critical assumption is that when bounded rational firms, unlike their rational profit-maximizing counterparts, are overoptimistic over a merger's productive efficiencies, overconfident in their escaping detection for their cartel activities, and more or less risk averse in entering a new market, they quickly bear the cost of their miscalculation. The market swiftly punishes the bounded rationality. The firm must quickly adjust or is eliminated. As the financial crisis reflects, many Wall Street firms were not swiftly punished (or their executives ever punished) for their sustained bounded rationality. Moreover, financial

⁷² JE Kwoka, Jr, 'The US Industry Under Duress: Fit, or Finished?' (2009), 5 *Competition Policy International*, 49.

⁷³ RS Tedlow, *Denial: Why Business Leaders Fail to Look Facts in the Face-And What to Do About it* (2010); 'Strategic Decisions: When Can You Trust Your Gut?', *McKinsey Quarterly* (March 30, 2010), <http://www.forbes.com/2010/03/30/decision-making-gut-leadership-managing-mckinsey.html>.

⁷⁴ ME Stucke, 'Am I a Price-Fixer? A Behavioral Economics Analysis of Cartels', in C Beaton-Wells and A Ezrachi (eds), *Criminalising Cartels: A Critical Interdisciplinary Study of an International Regulatory Movement* (Oxford, Hart Publishing, 2011).

⁷⁵ AP Reeves and ME Stucke, 'Behavioral Antitrust' (2011), 86 *Indiana L J*, 1527; Pittman, 'Irrational', 215–19 (discussing empirical literature that stockholders of acquiring firms do not benefit or do not benefit much from mergers).

⁷⁶ For recent surveys see M Armstrong and S Huck, 'Behavioral Economics as Applied to Firms: A Primer' (2010) 6 *Competition Policy International*, 2; C Engel, 'The Behaviour of Corporate Actors: A Survey of the Empirical Literature' (May 2008), Max Planck Institute for Research on Collective Goods Preprint No. 2008/23 7-8, <http://ssrn.com/abstract=1135184>.

institutions deemed too big to fail received an implicit government guarantee, and thus enjoyed a competitive advantage over smaller rivals that were permitted to fail.⁷⁷

One cannot assume that corporate behavior is as rational, if not more so, than consumer behavior. This may lead competition authorities to display greater skepticism over the likely efficiencies of problematic mergers and re-examine optimal deterrence theory in deterring cartels.⁷⁸

2.4 Scenario IV: Bounded Rational Firms and Consumers

Under this last scenario, many market participants have bounded rationality and willpower. Biases and heuristics are systemic. At closer inspection, Hayek's conception of competition as a discovery process could apply here. Bounded rational firms have an imperfect knowledge about current and future consumer preferences and only a limited repertoire of actions to cope with whatever problems they face.⁷⁹ Bounded rational consumers have inconsistent preferences, and, for example, may demand more money to give up an object than they would be willing to pay to acquire that object.⁸⁰

Firms (like consumers) can become more or less rational in their decision-making and improving their willpower. The ways heterogeneous firms learn, accomplish tasks, and deal with the uncertainty arising under scenario IV can vary widely. Bounded rational firms can have different degrees of success in learning and implementing this knowledge. They may seek to incorporate existing information into short-cuts (such as routines, heuristics, and rules). To maximize productive efficiencies, firms discover, implement, and update their routines, which can afford them a competitive advantage. But to satisfy consumers' changing preferences, firms cannot become wedded to established routines. They must find ways to discover new information, technologies, routines, and ways of organizing. Through trial-and-error experiments (or monitoring their

⁷⁷ Stiglitz, *Freefall*, 166.

⁷⁸ Stucke, *Price-Fixer*.

⁷⁹ G Dosi and L Marengo, 'On the Evolutionary and Behavioral Theories of Organizations: A Tentative Roadmap' (2007) 18 *Organization Science*, 491, 492, 494.

⁸⁰ RH Thaler, *The Winner's Curse: Paradoxes and Anomalies of Economic Life* (1992) 63; C Jolls et al, 'A Behavioral Approach to Law and Economics' (1998) 50 *Stan L Rev*, 1471, 1482, 1484, 1498; D Kahneman et al, 'Experimental Tests of the Endowment Effect and the Coase Theorem' (1990) 98 *J Pol Econ*, 1325, 1327 tbl.1 (summarizing studies).

competitors' experimentation), firms continually update product offerings and routines. Their ability depends in part on the efficacy of the feedback loop and transparency.

Scenario IV also presents another form of market failure. In competitive markets, firms identify and discover ways to solve consumers' problems. The financial crisis, Professor Stiglitz wrote, showed how the subprime mortgage industry worsened, rather than solved, borrowers' problems. Their mortgages increased costs and risks for consumers while providing the mortgage brokers and lenders greater fees. But these products also increased risks to the institutions that acquired the ensuing credit default swaps and collateralized debt obligations.⁸¹

What then are the implications of scenario IV for our conception of competition?

First, competition under scenario IV is better viewed as a process than an end-state with a stable equilibrium. Competition is an 'evolutionary trial and error process, in which the firms try out different problem solutions and can learn from the feedback of the market, which of their specific products and technological solutions are the superior ones.'⁸² Evolutionary economic theory, building upon Schumpeter's disequilibrium dynamics, criticizes the shortcomings of competition under neoclassical economic theory in explaining industries where technological change drives economic growth.⁸³ Competition, rather than an end-state capable of being perfected, is a continuous process 'in which previously unknown knowledge is generated,' and 'the multiplicity and diversity of the (parallel trials of the) firms might be crucial for the effectiveness of competition as a discovery procedure.'⁸⁴ Firms and consumers make mistakes, readjust, and undertake new strategies. The competitive process 'is inherently a process of trial and error with no stable end-state considered by the participants in the process.'⁸⁵

A second implication is the importance of path dependency. Private and government agents' prior choices can constrain the set of future choices.

⁸¹ Stiglitz, *Freefall*, 5, 80.

⁸² W Kerber, 'Competition, Innovation and Maintaining Diversity Through Competition Law', in J Drexler et al (eds), *Economic Approaches to Competition Law: Foundations and Limitations* (Edward Elgar, 2010), <http://ssrn.com/abstract=1543725>.

⁸³ F Moreau, 'The Role of the State in Evolutionary Economics' (2004) 28 *Cambridge J Econ*, 847, 851 (discussing how 'evolutionary theory refutes the neoclassical economic theory's focus on a steady state of the economic system').

⁸⁴ Kerber, *Diversity*, 2.

⁸⁵ Moreau, *Evolutionary Economics*, 851.

Some industries, like evolutionary processes generally, may be characterized by a degree of persistence of random events. 'Rather than being additive to a deterministic equilibrium, small random events in evolutionary processes may accumulate into larger factors that may change the nature of the system and its history.'⁸⁶ Under an evolutionary economic process, 'chance plays a significant role' and 'small, random (and therefore unpredictable) events may have severe long-run consequences.'⁸⁷

A third implication is that predicting competitive outcomes may be harder in scenario IV than scenario I. Competitive dynamics change in unforeseen ways, as firms continually accommodate and adjust to make the most of these changes.⁸⁸ Those adjustments and accommodations, in turn, lead to further changes by private and public institutions. Our knowledge of future events ranges between ignorance, uncertainty, risk, and certainty.

Although economic life is an adventure, it is not a roller coaster. Waking up tomorrow, I would not expect the value of the US stock market to lose about \$1.2 trillion, my employer to close its doors, or my country to default on its debt. But Black Swan events, Nassim Nicholas Taleb describes, carry an extreme impact and are outside the realm of regular expectations, because nothing in the past can convincingly point to its possibility. In spite of the events' outlier status, we concoct explanations for their occurrence after the fact to make them explainable and predictable.⁸⁹

Even for non-Black Swan events, like the price of bagels, competition can be viewed under scenarios I and IV. Visiting my bagel shop tomorrow, I would expect much the same assortment of bagels (plain, onion, poppy seed, etc.) and prices as today. Consumer preferences should not change dramatically overnight. The price, variety, and quality of bagels should not fluctuate wildly (e.g., \$2 gourmet bagels on Thursday and 70-cent plain bagels on Friday). But my comfort level decreases when trying to forecast bagel prices over a larger geographic area over a longer time period. The risk factors for the bagel industry, according to one public company, include: (i) changes in general economic condi-

⁸⁶ B Verspagen, 'The Use of Modelling Tools for Policy in Evolutionary Environments', in A Faber et al (eds), *Environmental Policy and Modelling in Evolutionary Economics* (2006), 4.

⁸⁷ Verspagen, *Modelling*, 6; F Schweitzer et al, 'Economic Networks: The New Challenges' (24 July 2009), *Science*, 422, 423.

⁸⁸ RR Nelson and SG Winter, *An Evolutionary Theory of Economic Change* (1982), 370.

⁸⁹ NN Taleb, *The Black Swan: The Impact of the Highly Improbable* (2007).

tions and discretionary consumer spending, particularly spending for meals prepared away from home; (ii) changes in consumer tastes and preferences, through new diet fads (e.g., low-carbohydrate diets) or government regulations (e.g., the prominent disclosure of nutritional and calorie information); (iii) food safety and reputation for quality; (iv) volatile commodity prices; (v) weather conditions (including natural disasters); and (vi) a regional or global health pandemic, which could severely affect bagel businesses that position themselves as a ‘neighborhood atmosphere’ where ‘people can gather for human connection and high quality food.’⁹⁰

So if bagel manufacturers face challenges in predicting and satisfying consumer preferences over the coming years, so too will competition authorities when predicting competitive effects in that industry. It is unclear how accurately the competition authorities currently predict across different industries the mergers’ likely competitive effects. Antitrust’s economic models mostly seek to reduce uncertainty, with their outcomes largely based on the validity of the models’ assumptions. For antitrust enforcers conducting merger simulations, the narrower the product and geographic market, the shorter the time horizon, the less likely that contingencies and random factors will play a material role in making outcomes indeterminate. Professors Budzinski and Ruhmer in their recent survey found several limitations in the current models, including the lack of data availability, the assumptions in the models, and the models’ neglect of non-quantifiable and long-run competitive effects, including the merger’s impact on innovation.⁹¹ No doubt merger simulations can help inform antitrust analysis. But with the rise of global trade, we are trending toward greater uncertainty, where unpredictable contingencies and random factors across the globe (e.g., a string of worker suicides in Foxconn’s factory in Shenzhen, China) can affect domestic competitors (like Apple that relies on low-cost labor).⁹²

A fourth implication under scenario IV is that competition involves parameters with importance beyond price. Under the model of perfect competition, as more firms compete, their products should become more homogenous as prices approach marginal cost. In scenario IV’s dynamic markets, consumers solve their problems through a better mix of

⁹⁰ Form 10-K, Einstein Noah Restaurant Group Inc – Bagl, filed Feb. 25, 2010 (period: 29 December 2009).

⁹¹ O Budzinski and I Ruhmer, ‘Merger Simulation in Competition Policy: A Survey’ (2009) 6 *J of Competition Law & Economics*, 277.

⁹² K Hille, ‘Foxconn to Shift Apple Gadgets Production’ (29 June 2010), *Financial Times*, 1.

solutions.⁹³ Firms in scenario IV can seek to escape price competition by reducing transparency or differentiating their product or service through branding and technological innovation.⁹⁴

Scenario IV's conception of competition also re-introduces moral beliefs of why we work, and how work reveals the fundamental truths of society and the treatment of individuals. Neoclassical economic theory posits individuals as undifferentiated in motivation: we seek, whenever the opportunity, to promote our economic self-interest. Labor is a commodity, an instrument for providing goods and services, and can be downsized, outsourced, or automated. There is no inherent dignity in work or greater social calling to use one's skills to society's betterment (unless this gloss of self-satisfaction improves morale and, in turn, productive efficiency). Absent moral content, industriousness is not a virtue: virtue, as a moral habit, is something toward which an individual progresses through virtuous conduct.⁹⁵ In contrast, competition under scenario IV can highlight the importance of individuality, creativity, and distinctiveness.⁹⁶ Work offers the opportunity to use one's unique gifts to improve the welfare of others, and thereby express and deepen individual dignity.

A fifth implication of scenario IV's dynamic markets is exogenous shocks and systemic risks. Antitrust enforcers typically examine a merger's anticompetitive risks with respect to the exercise of market power (ability to raise price) in narrowly defined markets. So when the dominant bank in the western US acquires a dominant bank in the eastern US, the merger, absent the resurrection of the perceived potential entrant theory, likely would go unchallenged. But in focusing on the details (such as whether the banks post-merger may raise rates for specific categories of borrowers), antitrust enforcers can fail to see or assess the impact of major factors, such as the merger's impact on the efficiency, competitiveness, and stability of the overall financial market system. The financial system, when viewed as a complex adaptive system, can become more vulnerable when one bank increases in size, and becomes too big to fail.

⁹³ Kerber, *Diversity*, 4.

⁹⁴ *State of Ill, ex rel. Burris v Panhandle Eastern Pipe Line Co.*, 935 F 2d 1469, 1481 (7th Cir 1991) ('Virtually all business behavior is designed to enable firms to raise their prices above the level that would exist in a perfectly competitive market'); Desai and Waller, *Brands*; Steiner, *Market Power*, 84–85 (discussing price premium for strong reputation brands).

⁹⁵ Pope John Paul II, 'Laborem Exercens: On Human Work', in DJ O'Brien and TA Shannon (eds), *Catholic Social Thought* (2006), 364.

⁹⁶ 15 USC, § 17 (2006) (Clayton Act providing that 'labor of a human being is not a commodity or article of commerce').

This is not always apparent. During periods of relative calm, having large financial institutions would appear beneficial. If a peripheral bank is subject to a random shock, the network's health would remain stable. Indeed, the larger banks would be credited for absorbing the shock. 'It is only when the hub – a large or connected financial institution – is subject to stress that network dynamics will be properly unearthed,' said a Bank of England executive, 'When large financial institutions came under stress during this crisis, these adverse system-wide network dynamics revealed themselves.'⁹⁷

Any understanding of competition must consider the requisite degree of diversity in a network to withstand shocks as well as fostering employment growth, formation of new firms, and increased innovation. Under a total welfare analysis, the competition authorities would assess a merger's short-term impact on consumer and producer surplus; but they would also assess the trade-off between the merger's short-term productive efficiency gains and longer-term risks, including the merger's threat to a network's resilience.⁹⁸ Perhaps the competition authorities often lack the information to make this assessment. Nonetheless, they cannot ignore the risks. Rather than making these assessments merger-specific, the government can rely on structural safeguards, such as limiting the banks' ability to grow beyond a certain threshold through mergers or separating 'utility' banking from riskier investment banking and trading activities.⁹⁹

But atomistic markets under scenario IV are not immune from systemic risk. If small bounded rational banks engage in herd behavior and similarly ignore their activities' riskiness,¹⁰⁰ then several bank failures can have a cascading effect and likewise cripple the banking system.¹⁰¹ Nonetheless, a larger, more diverse pool, while susceptible to herding, 'leads to a higher probability that in the case of an exogenous shock one of these

⁹⁷ AG Haldane, Executive Director, Financial Stability, Bank of England, 'Rethinking The Financial Network' (April 2009), <http://www.bankofengland.co.uk/publications/speeches/2009/speech386.pdf>.

⁹⁸ SJ Goerner et al, 'Quantifying Economic Sustainability: Implications for Free-Enterprise Theory, Policy and Practice' (2009) 69 *Ecological Economics*, 76, 77.

⁹⁹ S Bartholomeusz, 'Britain's banks on notice' (18 June 2010), *Business Spectator*, <http://www.businessspectator.com.au/bs.nsf/Article/Volker-regulation-George-Osborne-Bank-of-England-F-pd20100617-6H5BG?OpenDocument&src=sph>.

¹⁰⁰ Indeed rational banks may engage in risky behavior or risk the erosion of their stock price over the short term.

¹⁰¹ Stiglitz, *Freefall*, 149; Schweitzer et al, *Economic Networks*, 424–25.

technologies will provide an appropriate solution.¹⁰² Maintaining diversity can be one response to issues of uncertainty and systematic risk.¹⁰³

A sixth implication of scenario IV is weighing the costs of false positives and negatives from antitrust enforcement.¹⁰⁴ When outcomes are uncertain, how do you weigh error costs? Outside of cartel prosecutions, antitrust policy in the US since the Reagan administration has been concerned more about false positives than negatives. The greater one's beliefs in markets' self-correcting powers for private restraints (and inability to correct governmental restraints), the greater one's concerns over false positives. Competition officials should let market forces (albeit driven by bounded rational participants) play out. Market forces provide greater incentives for private actors to improve their willpower and rationality. Government agents, in contrast, have weaker incentives to avoid mistakes because of political myopia, the lack of direct accountability to voters, and regulatory capture. Thus, consumers may be worse off when the government seeks to correct irrational behavior.

Faith in the strength and ubiquity of markets' self-correcting powers has diminished after the financial crisis. Government paternalism can cause undesirable outcomes. But one cannot infer from anecdotes that governmental action *always* reduces overall well-being. With elected representatives from different communities, a national legislature can see what individuals in one community may not see. This does not mean that the government always knows more than the average citizen. But the legislature can incorporate the industry participants' diverse knowledge. As President Roosevelt wrote in recommending the strengthening and enforcement of the antitrust laws, the larger and more important question involves honest citizens 'who cannot see the social and economic consequences of their actions in a modern economically interdependent community.'¹⁰⁵

Moreover, bounded rationality differs from ignorance. The problems at times are apparent. One need not be a *Homo Economicus* to see that America has an obesity problem. Government agencies 'have the ability to study over time how individuals behave in certain settings,'¹⁰⁶ which the

¹⁰² Kerber, *Diversity*, 9.

¹⁰³ LA Sullivan and WS Grimes, *The Law of Antitrust: An Integrated Handbook* (2d edn, 2006), 11 (unconcentrated markets reduce the risk of costly error).

¹⁰⁴ False positives here involve finding antitrust liability for restraints that are competitively neutral or procompetitive.

¹⁰⁵ Message from President Franklin D. Roosevelt to Congress Transmitting Recommendations Relative to the Strengthening and Enforcement of Antitrust Laws, Apr. 29 1938, S. Doc. No. 173, 75th Cong., 3d Sess. 1 (1938).

¹⁰⁶ Rosch, *Next Challenges*.

UK's OFT is doing with pricing frames. The government can assist consumers, firms and its learning processes by promoting the dissemination of knowledge and reducing search costs. The Internet and advances in telecommunications, for example, have helped farmers in India learn of crop prices and from researchers' and other farmers' lessons through trial-and-error to increase yields and efficiencies. Farmers use cell phones to learn how to use less seed, fuel, and fertilizers, while reaping bigger harvests.¹⁰⁷

Moreover, savvy market participants recognize their bounded willpower and use commitment devices.¹⁰⁸ Every day, people have portions of their salaries automatically deducted into separate investment accounts, hire personal trainers to ensure they exercise, and set their clocks slightly fast. Similarly, the government – recognizing its bounded rationality and willpower – can use commitment devices (such as restricting through treaties its capacity to offer state aid to one competitor or industry). In regulating private behavior, the government, as discussed in scenario II, can use 'soft' paternalism rather than command-and-control regulation. One example is the use of default rules with a nominal cost to opt-out. If the government is less rational than market participants and chooses the wrong default option, presumably the level of opt-outs will be higher than usual, and the government can alter the default option.

Consequently, under scenario IV, the issue is not whether government regulation does more harm than good. Instead, the issue is whether government institutions have sufficient incentives to recognize their bounded rationality and to continually learn and update their beliefs.

3 CONCLUSION

Competition authorities should re-evaluate their conception of competition. In markets with sophisticated participants dealing with homogenous goods where price rather than innovation is key, competition may resemble scenario I. Other markets may resemble scenario IV, where 'competition is a method for solving knowledge problems through a trial and error process.'¹⁰⁹ Nor are industries confined to one scenario. Industries can originate in scenario IV when uncertainty exists over how the new technology can benefit consumers and what consumers desire. Various

¹⁰⁷ R Stone, 'News: Dialing Up Knowledge – And Harvests', *Science* (12 February 2010), 808.

¹⁰⁸ T O'Donoghue and M Rabin, 'Doing it Now or Later' (1999) 89 *Am Econ Rev*, 103–24.

¹⁰⁹ Kerber, *Diversity*, 5.

experimental designs are at play until through trial-and-error (or network effects) a dominant design emerges. As the industry matures, consumers and manufacturers experiment less, variety decreases, and competition turns on price. Then entrepreneurs seek a new technology to displace the old technology.¹¹⁰

Ultimately, competition, like any complex system, is incompressible, in that it is 'impossible to account for the system in a manner that is less complex than the system itself.'¹¹¹ One might ask whether defining competition, given the complexities, is necessary. But one cannot understand what goals are achievable from a competition policy unless one better comprehends how competition works. Understanding competition cannot be arrived deductively from the model of perfectly competitive markets composed of rational self-interested agents with perfect willpower; competition is better understood inductively through empirical research. Today competition agencies are conducting and sharing market studies,¹¹² but this remains competition policy's weakness.¹¹³

So the first order is to understand how competition works in particular markets in particular communities at particular time periods, and to reevaluate the premises of our theory of competition (including the rationality of the market participants). In undertaking this review, competition authorities should look beyond the current neoclassical economic theories and consider the developments in several inter-disciplinary fields, such as behavioral economics, new institutional economics, and evolutionary economics. The literature can provide a richer understanding of the observed marketplace behavior, how consumers choose, and additional remedial options, including default options. Ultimately, these interdisciplinary economic theories can improve antitrust analysis by helping us understand (1) what competition is, (2) what competition can achieve for us, and (3) how competition can promote the good life.

¹¹⁰ ED Beinhocker, *The Origin of Wealth* (2006), 254–57 (discussing product life cycle).

¹¹¹ OECD, *Framework*, 10.

¹¹² ICN Advocacy (Market Studies Project) Working Group, *Market Studies Good Practice Handbook*, April 2010.

¹¹³ Kerber, *Diversity*, 6 (no serious theoretical and empirical economic research about Hayek's concept of competition as a discovery procedure).