

# OPPORTUNITY IN FAILURE: ADDING “I&E” TO INTRODUCTORY ECONOMICS

Adam Galambos, Lawrence University

## ABSTRACT

*In this note, I contend that the subjects of innovation and entrepreneurship (I&E) need to be included in the introductory economics curriculum, and I propose a specific strategy for including them. I argue that it can be both practical and effective to add these subjects to the curriculum by bringing them into the discussion of market failures. Entrepreneurs see market opportunity where economists see market failure, and their market solutions to market failures are often instructive. The “opportunity in failure” perspective can add a new dimension to the introductory economics curriculum while taking the much overdue step to include the subjects of I&E. Additionally, this modification provides an opportunity to enrich the introductory curriculum with the Austrian perspective. A number of references are provided to help guide instructors in their specific implementation of this proposal.*

## INTRODUCTION

There have been many calls to bring the undergraduate economics curriculum up to date in several respects. In particular, the introductory microeconomics course is especially in need of reform. (Not all agree—see, for example, the comments in (Mankiw, 2009).) For many college students, it is the only economics course they take, and it is therefore an important vehicle for economists to make an impact on the general understanding of economics (Becker, 2000). Economic theory has progressed substantially in the past few decades, and there are new and well developed areas of theory that have yet to make a serious impact on the undergraduate introduction to economics (Ferguson, 2011). One important topic that has been recognized as a glaring omission in introductory courses is that of entrepreneurship. Though it has long been recognised as a major driver of economic growth, it is still only marginally treated in most economics textbooks (Kent & Rushing, 1999). It is telling that a major recent collection addressing the future of the economics curriculum (Colander & McGoldrick, 2009) does not contain the words “entrepreneurship” or “innovation” in its index, and none of its twenty-three chapters (all by different authors) address those subjects. The omission has persisted even as the economics of entrepreneurship has become a well established field of academic research (Parker, 2009).

The relegation of innovation and entrepreneurship (I&E) to the sidelines in introductory economics is detrimental in at least two ways. First, students’ understanding of how a market economy works is necessarily limited when innovation and entrepreneurship are not included in

a serious way. Second, students' views of the economy and economics become tilted towards seeing the economy either from the perspective of an outside observer, or the perspective of a government policy maker. The first of these is reinforced by the conscious focus of economists on "positive" economics. Even the second perspective encourages a static view of the economy as a system in equilibrium that can be subjected to various policies and moved to new equilibria. The missing perspective of the entrepreneur or innovator looking for opportunities is arguably the most important one in the economy.

In their discussion of the direction the economics major has taken in the past one or two decades, (Colander & McGoldrick, 2009) point out that economics curricula have traditionally been developed for the student who pursues graduate study in economics, but only a very small percentage of economics majors do that. Thus, even amongst economics majors, the vast majority of students are "generalists." They write: "Economics faculty are teaching students to think like economists, but it is not clear that "thinking like an economist" is the appropriate educational goal for these generalist students. Instead, for them, the goal should be to develop their ability to use broader reasoning tools in ways that are consistent with the economic way of thinking." The present proposal to bring the entrepreneurial perspective to discussions of market failure does just that.

The fundamental, even defining features of developed market economies are innovation and entrepreneurship (Baumol, 2002; Baumol, 2010; Schumpeter, 1942). The clash between the change inherent in innovative, entrepreneurial economies and the models in introductory economics becomes especially apparent in the discussion of so called "market failures." While we, economists, describe these phenomena as failures, entrepreneurs have seen them as opportunities and have provided solutions while taking advantage of these opportunities.

This proposal offers a strategy for adding substantive discussions of innovation and entrepreneurship to the introductory economics curriculum through turning discussions of market failure towards the entrepreneurial perspective. This strategy can be implemented with fairly minimal changes to the structure of the introductory course. In addition to enhancing the coverage of I&E in the course, it also provides an opportunity to enhance the treatment of market failures. While each instructor can use the ideas presented herein to suit his or her approach to the introductory economics course, I have found that this strategy can be implemented most successfully if a discussion of Austrian ideas on entrepreneurship occurs early in the course. Such a discussion has the added advantage of bringing a heterodox perspective to the typical, mostly neoclassical introductory economics course. With appropriate modifications, this proposal can be adapted to higher level economics courses as well.

### **AUSTRIAN PERSPECTIVES**

Though a substantial part of the typical introductory economics course is devoted to explaining how the market might fail, very little of it is devoted to how the market works. A

---

module on the Austrian perspective could partially rectify this through its focus on the *market process*, on *entrepreneurship*, and on *information dispersion and discovery*. (Egger, 2008) discusses how Austrian economics can be incorporated into the principles course, and points out that the Austrian perspective is in many ways very much consistent with the standard approach to introductory economics. In fact, (Colander, 2010) points out that important contributions of the Austrian school have more or less become accepted in mainstream economic thought. (Kirzner, 1997) provides a succinct discussion of an Austrian approach to microeconomics, and can be used as background reading. A module introducing basic notions of entrepreneurship and innovation can be presented, of course, without turning to the Austrian school. There may very well be additional value in introducing students to the Austrian perspective, but any introductory discussion of entrepreneurship and innovation will serve as preparation for the new material proposed below on market failure.

The classic work on entrepreneurship is (Kirzner, 1978). A concise summary of Kirzner's view of the entrepreneur and its comparison with Joseph A. Schumpeter's view can be found in (Kirzner, 1999), and can be assigned as supplemental reading. A more in-depth analysis of the Kirznerian entrepreneur and its place in the Austrian school is given by (Foss & Klein, 2010), who also include an introduction to Austrian ideas. Kirzner explored the role of entrepreneurship in the economy rather than study the practice of entrepreneurship, and this places the domain of his analysis squarely in microeconomics. The distinguishing characteristic of the Kirznerian entrepreneur is *alertness*. Through discovering and profiting from opportunities, entrepreneurs move the economy towards equilibrium. In courses that include market simulations, students will be able to connect these ideas directly with their own experiences with participating in a market. In general, any economic agent may take on the role of the entrepreneur, though some specialise in entrepreneurial activity.

The discussion of Kirznerian entrepreneurship complements very well the standard treatment of supply, demand, and equilibrium. Though it is often claimed in introductory courses that a market in disequilibrium will tend towards equilibrium because of surplus or shortage, it is well known that there is no convincing theoretical support for general convergence to Walrasian equilibrium. The details of the *process* of how a shortage or surplus would move price to equilibrium are left unexplained even in the simple one-market case. Introducing the notions of entrepreneurial alertness and discovery will give students one view of such a process, even if it is not a rigorous view. A more advanced course might additionally discuss the relationship between Kirznerian entrepreneurship and rigorous models of trading through intermediaries, such as (Blume et al., 2009).

In addition to consideration of the topics of entrepreneurship and the market process, the informational efficiency of the free market system should be explored in a basic overview. The allocative efficiency of the market system is strongly emphasized in introductory courses, but it is not difficult to show students that finding an efficient allocation could easily, perhaps more easily, be done in a centralized way. In fact, when students complete a market simulation, *they*

often calculate, as part of their assignment, an efficient allocation in order to compare it with the experimental outcome. The decisive advantage of the competitive market may actually be found in its *informational* properties. This idea goes back at least to (Hayek, 1945), which is appropriate supplemental reading for introductory (or more advanced) courses. A more rigorous course can follow the line that started with (Hayek, 1945) through the more formal work on communication complexity (Hurwicz, 1977; Mount & Reiter, 1974) all the way to the very general results of (Segal, 2007).

Whether it emphasizes the Austrian perspective or not, the module on entrepreneurship, the market process and information can be as short as one or two classes, or it can be a substantial new topic within the course. In addition to supplemental readings mentioned above, chapters from (Baumol, 2002) or (Baumol, 2010) are appropriate even at the introductory level.

### **MARKET FAILURE AS OPPORTUNITY**

The typical introductory microeconomics course gives students a solid grounding in supply-demand analysis and surplus analysis to demonstrate the optimality of markets, and then proceeds to discussions of “market failures.” These include externalities and public goods, as well as asymmetric information. It has been argued, both in particular examples of supposed market failures as well as more generally, that these failures exist more in our theories than in the economy. The book by (Spulber, 2002) gives several representative examples of fictional market failures that persisted in textbooks for a long time; chapters from the book are appropriate as supplementary reading for introductory courses. More recently, (Dean & McMullen, 2007) argue for viewing market failure as entrepreneurial opportunity, and provide a typology entrepreneurial activity according to the market failure addressed. They thus propose the notions of *Coasian entrepreneurship* (providing better defined property rights), *institutional entrepreneurship* (reducing transaction costs, establishing economic institutions), *market appropriating entrepreneurship* (challenging monopoly markets), *political entrepreneurship* (challenging inappropriate government intervention), and *informational entrepreneurship* (discovering informational asymmetries, enhancing information).

The following proposals contain specific strategies for incorporating discussions of I&E through a more realistic and well-rounded discussion of market failures. These suggestions can be used to modify the typical introductory economics course effectively and without requiring major changes. It is not the purpose of this note to discuss the general treatment of these topics in introductory economics courses, so the focus will remain on proposed changes. As readers are likely to be familiar with the relevant basic notions in economics, these notions will be used without definitions.

---

## Externalities

The notion of externalities illuminates for students phenomena which they are deeply familiar with. Using the notion of *external cost*, the damage on third parties can be placed into the supply-demand framework. The deadweight loss then identifies the failure of the market. This subsection opens with the problem of externalities, because it is the one subject where a version of the present proposal is already common practice. In particular, the lesson of the Coase Theorem is that private initiative can resolve the failure of the market mechanism when transaction costs are low and property rights are well defined. Students are encouraged to think about innovative ways to resolve conflicts, ways to reclaim the value lost to market failure. As an important part of the unit on externalities, various government interventions aimed at correcting the market failure are typically discussed and evaluated.

Pointing to the opportunities for potential gains from private negotiation, as the Coase Theorem does, is valuable, but only half the story. Entrepreneurial alertness and action (using Kirzner's terms) are needed to take advantage of such opportunities. In addition, transaction costs or poorly defined property rights can prevent private solutions to externalities, and lowering such transaction costs or innovative solutions to better defining property rights represent opportunities for entrepreneurs. (Dean & McMullen, 2007), who focus on environmental entrepreneurship, point out that class action lawsuits can be seen as entrepreneurial responses to situations where high transaction costs and collective action problems would otherwise prevent private resolutions to externality problems. They also describe the example of Richard Sandor's Chicago Climate Exchange, which can be used to illustrate how entrepreneurial action can address environmental problems (see also Sandor, 2002).

The more common approach to environmental problems is regulation by government agencies. These regulations often have interesting (and sometimes unexpected) effects on innovation in the affected industries. The analysis of incentives to innovate can be brought into the introductory economics curriculum through the study of these effects of environmental regulation. The Porter Hypothesis (PH) states that environmental regulation of an industry can, in fact, make it more efficient, more profitable and more competitive globally. (Porter & Linde, 1995) give several specific examples of this, and also review critical responses to the PH. (Lanoie et al., 2011) test three versions of the PH empirically, and they find strong support for a weak version of the PH. The effects of environmental regulation on innovation are complex and still not well understood, while growing in importance. Some recent studies survey the state-of-the-art (Hemmelskamp, 1997; Kemp, 2000), and a course with a strong emphasis on environmental regulation could draw on this literature.

There is another aspect of the problem of optimal regulation that connects it with Austrian ideas and the study of innovation. Often environmental regulation is meant to force industries to invest in pollution-reducing innovation. That is, regulators understand that they may not be aware of some attainable outcomes, and they rely on innovation by the regulated industry

to uncover such possibilities in reducing pollution. This gives firms in the regulated industry some power to shape the regulation they will be subject to, and they sometimes use this power strategically either to lighten the regulatory burden and hold back innovation, or to gain a cost advantage against rival firms and invest heavily in innovation (Puller, 2006). The importance of “complete ignorance,” or unawareness, in the economy is often emphasized by Austrians, as is innovation.

### **Information issues**

Introductory texts emphasize the importance of the assumption of perfect information in competitive markets, and the inefficiency that results from asymmetric information. This neoclassical treatment makes two important omissions. First, it fails to shed light on the *market process*, which the Austrian school has emphasized. Kornai, though not an Austrian, compared “the pale category of competitive equilibrium to relations between a frigid woman and an impotent man” (Kornai, 2006, p. 190). Second, it leaves the student with the impression that information asymmetry will inevitably lead to market failure. In fact, information asymmetry is pervasive, and often leads to market opportunity. We address both of these points below.

The market process can be well illustrated by an in-class experiment, where students simulate a market (see, for example, Chapter 1 or 2 in Bergstrom & Miller, 1999). The process of communicating bids and asks in an oral double auction demonstrates that convergence to equilibrium is a result of information sharing motivated by individual gain. This can be a good foundation for the subsequent discussion of asymmetric information, and can be followed by an in-class experiment simulating the lemons market (see Chapter 12 in Bergstrom & Miller, 1999). It also emphasizes that the perfect information assumption does not imply that “everyone knows everything,” and participants in a market hold private information that the market process eventually aggregates into equilibrium prices (Kirzner, 1978). With or without an in-class market simulation, a discussion of the information aggregating role of prices should preface the unit on asymmetric information. This could link back to the introduction to Austrian ideas early in the course, as discussed in section 2.

The problems of adverse selection and moral hazard appear in a number of important applications, and form an integral part of today’s economics curriculum. It is important for students to develop a solid understanding of these phenomena, especially as they often appear in the popular press. However, it would also be important that students learn to see these problems from an entrepreneurial perspective, and that they understand how economics as a science can explain and evaluate entrepreneurial solutions that have appeared in the marketplace.

---

## Adverse selection

A discussion of adverse selection is commonly part of an introductory course. For example, (Mankiw, 2011, p. 470) describes several examples of markets afflicted by a “hidden characteristics” problem, and proceeds to brief discussions of signalling, screening, and the possibility of government policy responses. Mankiw’s approach is representative, and the leading example in most discussions is the lemons market (Akerlof, 1970). In my experience, the typical introductory economics class will have at least a few students who will be aware of used car quality certification services, which will lead them to question the relevance of the notion of “market failure.” It is natural then to take the next step in analysing the used car market, and to add the possibility of quality certification to the model of the market, followed by a discussion for the market for certification services. A numerical example of breakdown in a lemons market can be expanded into a model with a quality certification market with free entry, and this market’s functionality can be easily demonstrated. More subtle questions about possible information problems regarding certifiers can then be raised.

In a course with experiments, the lemons market experiment (see Chapter 12 in Bergstrom & Miller, 1999) can be expanded by allowing students to open quality certification businesses at a cost. As a first step, it is useful to assume that the quality certifiers present completely credible (costlessly verifiable) information. Students will be able to work out the new equilibrium in the market, involving an equilibrium number of quality certifiers. This simulates effective entrepreneurial response to asymmetric information problems in a market.

A broader discussion of quality disclosure (voluntary, mandated, or via third-party certification) in a variety of markets can be based on the survey by (Dranove & Jin, 2010), which is accessible to introductory economics students. This provides an opportunity to incorporate a more balanced view of government, industry, and market responses to problems of asymmetric information. It is also a natural and low-cost way to introduce mini case studies from several industries that are well known to students (health care, college choice, automobiles). (Dranove & Jin, 2010) add a historical dimension (made more relevant by the financial crisis) by pointing out that “[m]arket driven, third-party disclosure first occurred in 1909 when John Moody issued bond ratings, followed quickly by Poor's Publishing in 1916 and Standard Statistics in 1922.”

## Moral Hazard

Moral hazard is typically discussed with adverse selection in the introductory economics course, using the insurance market or the principal-agent model as the illustrative example. Innovation in the health insurance industry can be used to illustrate how entrepreneurs provide solutions to these problems. A new industry focused on providing health incentive programs with employer sponsored insurance is springing up and has been described in health industry trade

journals as well as the press (Hand, 2009; Lohr, March 27, 2010). RedBrick Health, one of the earliest entrants, provides programs to companies including Scotts, WelchAllyn, and Fortune 500 companies SaraLee and Cargill; other large firms, such as IBM and General Electric, choose to create their own health incentive programs.

In the economics literature, behavioural economists have studied whether health behaviour can be shaped through better incentives. (Charness & Gneezy, 2009) report on their study on exercise habits, and they show that appropriate incentives can significantly influence good habit formation. (Cawley & Ruhm, 2011) provide a comprehensive review of the economics of risky health behaviours, including extended discussions of both the more traditional approaches to these problems, as well as the more recent studies of the effectiveness of various incentives aimed at changing behaviour. The private provision of commitment mechanisms can also be relevant to discussions of moral hazard, though the subject has broader implications in behavioural economics. (Burger & Lynham, 2010) look at the weight loss betting market, while (Gine et al., 2010) report on their test of a voluntary commitment product for smoking cessation.

## CONCLUSIONS

The introductory economics curriculum has yet to integrate serious coverage of the topics of innovation and entrepreneurship. While these topics are now recognised as very important in themselves, the failure to cover entrepreneurial responses to market failures in particular provides an opportunity to effectively add coverage of I&E to introductory economics courses. I proposed specific approaches to include these topics in introductory economics courses. These proposals can, however, be easily adapted for more advanced economics courses as well.

There are several reasons to add the topics of I&E to discussions of market failures. First, the tension between the efficiency of idealised markets and the inefficiency resulting from market failures is fundamental in introductory economics courses. Students learn to analyze problems using economic tools, and to make welfare comparisons using the perfectly competitive case as a benchmark. Various government interventions to correct market failures are evaluated in this way, but entrepreneurial responses based on private initiative are not emphasized. It is important to convey to students that such responses to market failures are common and can be analyzed using the tools of basic economics.

Second, I&E can be added to the introductory economics course with minimal modifications as part of the discussion of market failures. Instructors can easily add the new material to their existing courses, devoting a little more time to the topics of market failures. I referenced above a number of additional readings, many of which are appropriate even for students in introductory economics. These can be used to develop specific implementations of the proposals above to suit specific circumstances.

## REFERENCES

- Akerlof, G. A. (1970), The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics*, 84, 488-500.
- Baumol, W. J. (2002). *The free-market innovation machine: analyzing the growth miracle of capitalism*. Princeton University Press.
- Baumol, W. J. (2010). *The microtheory of innovative entrepreneurship*. Princeton University Press.
- Becker, W. E. (2000). Teaching Economics in the 21st Century. *The Journal of Economic Perspectives*, 14, 109-119.
- Blume, L. E., D. Easley, J. Kleinberg, and É. Tardos (2009). Trading networks with price-setting agents. *Games and Economic Behavior*, 67, 36 - 50.
- Burger, N. & J. Lynham (2010). Betting on weight loss ... and losing: personal gambles as commitment mechanisms. *Applied Economics Letters*, 17, 1161-1166.
- Cawley, J. & C. J. Ruhm (2011). The Economics of Risky Health Behaviors in Pauly M. V., McGuire T.G., and Barros, P. P. (eds). *Handbook of Health Economics*. North Holland.
- Charness, G. & U. Gneezy (2009). Incentives to Exercise. *Econometrica*, 77, 909--931.
- Colander, D. C. (2010). The Domain of Austrian Economics in Koppl, R., Horwitz, S., and Desrochers, P. (eds). *What Is So Austrian about Austrian Economics?*. Emerald Group Publishing Limited.
- Colander, D. C. & K. McGoldrick (2009). *Educating economists: the Teagle discussion on re-evaluating the undergraduate economics major*. Edward Elgar.
- Colander, D. C. & K. McGoldrick (2009). The Economics Major and Liberal Education. *Liberal Education*, 95 (2).
- Dean, T. J. & J. S. McMullen (2007). Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action. *Journal of Business Venturing*, 22, 50 - 76.
- Dranove, D. & G. Z. Jin (2010). Quality Disclosure and Certification: Theory and Practice. *Journal of Economic Literature*, 48, 935-63.
- Egger, J. (2008). An Austrian Foundation for Microeconomic Principles. *Quarterly Journal of Austrian Economics*, 11, 242-261.
- Ferguson, W. D. (2011). Curriculum for the Twenty-First Century: Recent Advances in Economic Theory and Undergraduate Economics. *The Journal of Economic Education*, 42, 31-50.
- Foss, N. J. & P. G. Klein (2010). Entrepreneurial Alertness and Opportunity Discovery: Origins, Attributes, Critique in Landström H., Lohrke F. (eds). *Historical Foundations Of Entrepreneurship Research*. Edward Elgar Publishing.
- Gine, X., D. Karlan, & J. Zinman (2010). Put Your Money Where Your Butt Is: A Commitment Contract for Smoking Cessation. *American Economic Journal: Applied Economics*, 2, 213-235.
- Hand, L. (2009). Carrots & Sticks. *Harvard Public Health Review*. Harvard University.
- Hayek, F. A. (1945). The Use of Knowledge in Society. *The American Economic Review*, 35, 519-530.
- Hemmelskamp, J. (1997). Environmental policy instruments and their effects on innovation. *European Planning Studies*, 5, 177-194.
- Hurwicz, L. (1977). On the Dimensional Requirements of Informationally Decentralized Pareto-Satisfactory Processes in Arrow K., Hurwicz L. (eds). *Studies in Resource Allocation Processes*. Cambridge University Press.
- Kemp, R. (2000). Technology and Environmental Policy: Innovation Effects of Past Policies and Suggestions for Improvement in *Innovation and the environment, Proceedings, Organisation for Economic Co-operation and Development, Working Group on Innovation and Technology Policy*.
- Kent, C. A. & F. W. Rushing (1999). Coverage of Entrepreneurship in Principles of Economics Textbooks: An Update. *The Journal of Economic Education*, 30, 184-188.

- Kirzner, I. M. (1997). Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach. *Journal of Economic Literature*, 35, 60-85.
- Kirzner, I. M. (1978). *Competition and entrepreneurship*. University of Chicago Press.
- Kirzner, I. M. (1999). Creativity and/or Alertness: A Reconsideration of the Schumpeterian Entrepreneur. *The Review of Austrian Economics*, 11, 5-17.
- Lanoie, P., J. Laurent-Lucchetti, N. Johnstone, & S. Ambec (2011). Environmental Policy, Innovation and Performance: New Insights on the Porter Hypothesis. *Journal of Economics & Management Strategy*, 20, 803--842.
- Lohr, S. (March 27, 2010). Carrots, Sticks and Lower Premiums. *The New York Times*.
- Mount, K. & S. Reiter (1974). The Informational Size of Message Spaces. *Journal of Economic Theory*, 8, 161--192.
- Parker, S. C. (2009). *The Economics of Entrepreneurship*. Cambridge University Press.
- Porter, M. E. & C. v. d. Linde (1995). Toward a New Conception of the Environment-Competitiveness Relationship. *The Journal of Economic Perspectives*, 9, pp. 97-118.
- Puller, S. L. (2006). The strategic use of innovation to influence regulatory standards. *Journal of Environmental Economics and Management*, 52, 690 - 706.
- Schumpeter, J. A. (1942). *Capitalism, socialism and democracy*. Routledge (1994 edition).
- Segal, I. (2007). The communication requirements of social choice rules and supporting budget sets. *Journal of Economic Theory*, 136, 341-378.
- Spulber, D. F. (2002). *Famous fables of economics: myths of market failures*. Blackwell Publishers.