Teaching Economics through the Novel: Richard Powers’ *Gain*

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1. INTRODUCTION

Professional economists have long appreciated the importance of improving the teaching of economics. One emergent theme from recent research is a focus on finding alternatives to “chalk and talk” (Becker & Watts, 1998). The strand of that literature that most informs this paper concerns the use of literary fiction to help motivate and illustrate basic economic principles. Watts (2003, xxiii) puts it this way,

...in teaching economics, and more broadly, in the attempt to develop an articulate citizenry, literature may well be indispensable. In fact, in their efforts to influence public opinion and explain to noneconomists why what they do is important, economists may need literature and drama more than literature and drama need economists. Literary treatments (including “good stories” told by economists) are often more convincing to noneconomists than are mathematical models and statistical evidence.

While agnostic on “who needs whom more,” we too believe that literature can help

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motivate, illustrate, and ultimately ‘explain’ economic models. Professional economists love their models, their students less so. And where most economists have an appreciation for how intimately intertwined narratives and models are, students often do not. As McCloskey (1990: 1) notes, “It is clear that economists, like a poet, use metaphors. They are called ‘models.’” She (1990: 11) goes on, “A story answers a model. But similarly a model answers a story…the best economics combines the two, the static model and the dynamic story, the economic theory and the economic history.”

In this paper we make three related arguments. First, there is a place for the novel in providing stories about our models for students new to economics. Our specific experience comes from teaching a freshman seminar that has an economic focus. While we touch on the pedagogical issues involved in using fiction to teach economics it is not the focus of our argument. We take the literature on the topic as our starting point. ¹ Second, the quality of the novel matters—novels written explicitly to teach economics often leave students feeling as if economics is little more than a detective’s toolkit.² We analyze Gain by Richard Powers,³ a work that combines literary merit with a deep understanding of economic theory.⁴ In a word, Gain is

¹ Note, this research is distinct from the methodological literature that argues about the place of rhetoric in economics. It is clearly grounded in a concern over pedagogy. A good starting point in exploring this research is Becker (1997), Becker and Watts (1995), Watts (1998), Watts (2003) and Watts and Smith (1989).

² A laudable goal in some cases, but one better met by many of the recently published popularizations of economics (e.g. Levitt and Dubner 2005; Harford, 2006).

³ Gain’s author, Richard Powers, is well-known as both an author and a professor. Powers teaches at the University of Illinois holding the prestigious Swanlund chair, an endowed chair in English. Powers has published nine novels and is often compared to such authors as of Thomas Pynchon, William Gass, and John Barth. Powers was awarded a MacArthur ‘genius’ award in 1989. Powers has accumulated many awards for his writing, including a National Academy and Institution of Arts and Letters Award and a special citation from the PEN/Hemingway competition. His books have been short-listed for many prestigious literary prizes, and “Powers was named a fellow of the American Academy of Art and Sciences for his significant contributions to the exploration of knowledge and culture. In 1990, just beyond his fortieth birthday, Powers received one of the prestigious Lannan Literary Awards that annually honor ‘writers of exceptional quality’” (Dewey, 2002: 4-5). Gain won the James Fenimore Cooper prize (American Society of Historians) for best historical fiction in the period 1997-1998.

⁴ While “Gain” is one example from a possibly larger set of novels, we have yet to find another natural marriage of high-level economic reasoning with literature. As modern fiction the selection of Gain runs contrary to most suggestions in the literature that suggest reading the “classics.” While there are many fine classic novels that weave elements of economics into a broad tapestry, we feel that one would be hard pressed to find a novel that
as smart about economics as it is well written. And it is very well written. Third, understanding that the opportunity cost of reading an entire novel may be high, we argue that a novel is not appropriate in all circumstances.\(^5\) We conclude by offering a number of concrete suggestions and examples helpful to instructors considering adding literary fiction to their syllabi. We do this by providing a framework for using *Gain* (see Appendix one).

2. **Literary Fiction and the Teaching of Economics, Why a Novel?**

We came to the idea of teaching economic concepts through a novel when tasked with designing a seminar as part of our college’s general education curriculum.\(^6\) In the spring semester of the course instructors develop individual sections organized around a theme relating to their research or teaching interests. We developed a section focusing on the relationship between American democracy and the American economy. Specifically, we analyzed the corporation as a virtual person under the law, and the implications of this unique type of citizen for American democracy. We sought to combine elements of traditional economics (e.g., economies of scale and the size of the firm, role of trade, causes of economic growth) with more historical and political elements (e.g., as a virtual citizen what is the role of the corporation in American democracy? How did we come to grant the corporation personhood?). *Gain* was the centerpiece of the course.

One challenge we faced was translating the implications of our economic models into important “real world” observations. The economist’s appreciation of models is born of long experience applying them. Lacking such experience, students are often over-whelmed with

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5 Watts recognizes the opportunity cost of using literature in the classroom. In his list of “Dos” Watts (1998: 194) argues that instructors “be very selective in the readings you choose, both in terms of the number of readings used (which should normally not exceed three or four readings in a semester-long class) and topics covered (which should be something you feel is important enough to warrant additional class time).”

6 The course, *Inventing America*, is a two-semester general education requirement for all first-year students. In the fall the course examines the principles upon which the American experiment in democracy was founded. In the spring it explores the continuing evolution of this American “invention.” The first year we taught the course we were honored to have Richard Powers deliver a talk on *Gain* to the class.
understanding a model’s mechanics and so cannot appreciate its purpose. This lack of experience contributes to a student’s sense that a model is arbitrary, ad hoc, or unrealistic— objections anyone with experience teaching introductory economics courses has heard before. As an example of the clarity a story can add to an economic model consider Akerlof’s lemons model. If all that was ever known of adverse selection were the mathematics of information constraints, how many would ever have appreciated its true importance? A story relating the near universal experience of what runs through a buyer’s and/or seller’s mind in the used car market provides an important motivation for learning the model. Further, it provides a mental map that links the model to the real world observations it is attempting to capture. Perhaps most importantly, the story ends up ensuring the principle is broadly understood and its importance broadly appreciated. A common definition of a classic is a text seldom read but often cited. In economics a classic model might be defined similarly: one whose results are seldom derived but often shared (like the market for lemons!).

To overcome this problem we sought a non-traditional set of readings that would help students understand how the predictions of economic models would actually manifest historically. We settled on a collection of movies, magazine articles, legal decisions, and the novel Gain.

As an element of economic pedagogy the use of novel-length manuscripts has not received much attention. A review of the literature on teaching economics through fiction reveals that, if used at all, instructors tend to employ “short, self-contained readings” to help underscore or illustrate economic points made in the classroom (Watts, 1998). When whole sources are used they tend to be one of the recent popularizations of economics, or a journalistic application.

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7 Our suggestion to use an entire novel certainly violates this traditional advice. We view our suggestions here as a complement, not a substitute, to Watts’ arguments. Employing textual fragments is obviously a valid way of using literature to teach economics, and is consistent with our presentation of Gain (one could have students read snippets of Gain, see Appendix 1 for a collection of excerpts that illustrate basic economic principles). On the core issue, the value of literature, we agree with him.

8 For example, Frank (2008), Harford (2006, 2008), Levitt and Dubner (2005).
Perspectives on Economic Education Research

Given the high opportunity cost of devoting enough time to read and properly analyze an entire novel, and the perception of relatively small benefits, it may be perfectly rational that economists rarely turn to the novel as a teaching tool. The case of a one-semester Principles course for eventual majors comes to mind. Each topic covered is crucial as the students prepare for their eventual major. On the other hand, it may simply be an information problem— instructors being unaware of the novel as a teaching aid. Or perhaps instructors feel that novels distort rather than clarify economic intuition, that novels sacrifice the careful presentation of economic theory for narrative development.9

Our position is that under certain conditions —when one has more time, or when the primary audience is not future majors—using an entire novel is a natural extension of Watts’ ideas. For instance the novel could work well in a topics course for non-majors, in a general education course with an economics focus, or even in a course designed to attract majors.10 Our hope here is to increase the clarity concerning the potential benefits of a novel as a pedagogical device—believing that a clear and thorough understanding of them will only better inform these considerations.11

One way the opportunity cost of using a novel may be lessened is if it serves to increase the productivity of instructional time. As mentioned, in a classroom of students with a diverse set of academic backgrounds, a plurality of pedagogical approaches is important. A novel provides an alternative approach for students to engage with economics. It is common for some courses in economics (typically a Principles course) to be part of a student’s general

9 Watts and Smith (1989) reflect this opinion, “The one area where literary works generally fail to provide useful materials for economists is in the development of a complex set of interrelated economic actions and consequences” (Watts and Smith, 1989: 300). We believe Gain avoids both these problems, and is an ideal literary foundation for a course exploring economic theory (see the section “Why Gain” below).

10 Research indicates that the vast majority of students will see only limited exposure to economics (often only a single course), and that focus on formalism in these courses ends up hindering the student’s ability to absorb the lessons of economics. See chapter One of Frank (2008) for an interesting discussion of this issue.

11 We are not making empirical claims about the independent impact of using the novel on student outcomes. We have no metrics that would allow us to do so. Our argument here is based on our classroom experience, and reflects student response to the use of a novel.
education curriculum. Such courses attract a variety of students with heterogeneous interests and academic backgrounds. In such a class some students may feel a closer attachment to the humanities and literature than to the social sciences. We used Gain in the context of a general education class in sections of 20 students with varying academic interests. Our experience suggests that a novel such as Gain dramatically increases student interests in basic economic issues. A novel presents a self-contained thought experiment. Students who are more comfortable with the novel form can find more motivation—and an intellectual map—to economic models typically presented in a classroom.

A novel places economic concepts in a social, institutional, and historical context. We all try to convey to our students, with varying levels of success, the idea that the economy and, perhaps even our economic theory, is a product of our cultural milieu. It can often be difficult for students to appreciate these discussions when they are struggling simply to master the basic model. A novel addresses these relations in a natural way, in a way that serves to draw the student into a discussion that need not feel forced. As we will see, in Gain the reader comes to see the organic nature of corporations and institutions: how technology, institutions, and public policy all change through time and in turn alter one another in a dynamic, intensely historical, process. Further, the structure of the novel helps trace the impacts of these technologies, institutions, and policies through to their ultimate effects: on individuals, families, towns, countries, and ultimately the globe. The reader sees these stories unfold in a way that is quite different, perhaps richer, than from usual economics classroom methods. New learning opportunities that develop from intertwining the novel with standard textbooks in economics appear.

Early in any economics course, the instructor typically stresses the interdependence of markets and the many possible consequences of economic activity and change. In practice, however, most courses usually confine themselves to partial equilibrium analysis (with the common exceptions of externalities). A novel can facilitate a broader discussion of the general equilibrium implications of the lessons learned in a partial equilibrium framework. The interdependence of agents and their actions is inherent in any well-structured plot line—
characters are affected by and react to the actions of others.

A novel can provide a referent, a common thread; drawing students back to the themes of the course (and because Gain ultimately covers so many different topics, it can ultimately be used in a variety of economics courses). One danger facing any course in economics, but especially an introductory or overview course, is that it becomes an “economic topics course”—a collection of disparate topics, each important in its own right, but not well integrated. How does the discussion of the money multiplier in macroeconomics relate to savings and consumption decisions? How exactly do scale economies relate to market power, or to externalities, or to consumer behavior, etc.? Again, a novel provides one author’s vision of the interrelatedness of these different textbook topics. It is this thought experiment that stimulates the reader’s imagination, stimulates discussion in and out of class, and through guided discussion can focus students on the central notions of general equilibrium economics.

Typically students experience difficulty in applying classroom material to real world issues—a key pedagogical goal of any instructor. Students find it difficult to understand what one can safely “assume” versus what needs to be rigorously derived. What details of a problem can be safely ignored? Which aspects of a particular issue render it more unique than a general model would imply? This confusion often manifests itself in a student’s feeling that models are “unrealistic” or ad hoc. A novel allows students to engage situations that are more complex than the typical textbook case and forces them to work through how to apply a model they have learned.13

12 These constitute higher order levels of knowledge that we want students to acquire. In Hanson’s (1986) hierarchy of knowledge for economics majors it is number 4: “Utilizing Existing Knowledge to Explore Issues. Bloom et. al. (1956) might include these knowledge skills in categories 3 through 5: Application, Analysis, and Synthesis.

13 We have used Gain as required reading twice. In both cases we structured multiple writing assignments around the novel. These ranged from the “fun” (we had students write a fictional epilogue to the novel that contemplated the future of Clare the corporation) to the “serious” (applying economic concepts to understand passages from the novel). Our experience is that the novel served to increase the students’ acquisition of economic concepts.
3. Why Gain?14

We now turn to the more specific question of how and why one might use Gain.15 We include a table of excerpts (see Appendix One) illustrating the broad array of topics addressed in Gain.16 We also take up three specific examples from Gain and how they relate to standard classroom economic theory.

Gain weaves a multidimensional story that demonstrates the interconnectedness of real and virtual individuals (humans and corporations) in modern economies. Gain twins the narrative of Clare (a fictional chemical company) with that of Laura Bodey (an Illinois Real Estate Agent living in Lacewood who learns she has cancer). The novel begins by detailing just how Clare came to Lacewood (location of its North American Agricultural Products Division), and how Laura and Clare become intertwined thereafter. Laura is surrounded by Clare, but never fully a part of it.17 Powers follows Clare from its inception in Boston as a chandlery and soap manufacturer in the early 1800s to its giant multinational status at the turn of the 21st century. He follows Laura, a divorced single mother of two, as she learns of her cancer, through her treatments, to her eventual death.

The novel can be read as an attempt to understand the importance of one person’s death as it is echoed in the birth of the virtual person (the corporation, recognized as a person under the 14th amendment) and what this all means for mankind more broadly. But this is only


15 Another Powers’ book, Plowing the Dark, also touches on many economic issues. Typical of Powers’ writing he addresses these issues in a very informed manner, especially issues surrounding the role of simulation in the social sciences, and how simulation compares to more traditional econometric techniques. However, while Plowing the Dark does a wonderful job addressing these themes, its focus is not grounded in specifically economic issues. Another possible Powers book that could be used by economists is Prisoners Dilemma, a story of a family that develops many game theoretic ideas.

16 See Appendix One. It should be noted that the items in the appendix represent a small portion of the total set of relevant applications in Gain

17 Laura is “A woman who has never thought twice about Clare. Sure she knows it: the name is second nature…the firm built her entire town and then some. She knows where her lunch comes from…but still, she knows Clare no better than she knows Grace or Dow. She does not work for the corporation or for anyone the corporation directly owns. Neither does any blood relation or any loved one.” (6)
one way to read Gain. Probably a more interesting read for economists, and just as valid, is the question posed by the title: on the grand scale of things, does the gain that accrues to society from the existence of corporations, and their logic of efficient profit maximization, offset their costs? Does the existence of the corporation leave us with a net ‘gain?’ If so, what is the nature of that gain? The metaphor of chemistry runs through Gain, as does the suggestion that the corporate form may be a cancer on the body politic.

But Gain does not lend itself to a simple singular reading in which corporations are bad and individuals good. Powers is well aware that corporations make much of what we take for granted possible, and, at this point, are as much (or more) a part of the social fabric as is the Church, the state, and, ultimately, the family. Laura confronts the essential cost-benefit thought experiment (hypothetical of course) that we would all ponder in her situation: would she trade a corporation-free world for a cancer-free life? Her surprising conclusion: “The newspapers, Don, the lawyers: everybody outraged at the offense. As if cancer just blew in through the window. Well, if it did, it was an inside job. Some accomplice, opening the latch for it. She cannot sue the company for raiding her house. She brought them in by choice. And she’d do it all over again, given the choice. Would have to” (304).

One of the book’s clear achievements is that it renders the corporate story of Clare, a virtual character, every bit as interesting and compelling as Laura’s story. Clare survives and grows only insofar as its management successfully adapts to a succession of new developments: legal developments (arrival of the corporate form), technological developments (arrival of steam, rail, etc.), institutional developments (rise of national and international markets, development of multiunit firm), political developments (civil war, labor movements), and much more. We ultimately agree with the many literary critics who have argued that Powers has succeeded at bringing business history to life better than any other writer in American history. The primary reason being that Powers understands, and presents, the economics so well.

As mentioned, some who disavow the use of novels in the classroom may do so because they see novels distorting rather than clarifying economic intuition. Watts and Smith (1989) reflect this opinion, “The one area where literary works generally fail to provide useful
materials for economists is in the development of a complex set of interrelated economic actions and consequences” (Watts and Smith, 1989: 300). We chose Gain because we believe it avoids both of these problems, and is an ideal literary foundation for a course exploring economic theory. In his novel Powers indeed develops “a complex set of interrelated economic actions and consequences” sufficiently compelling to captivate non-economics students as well as students of economics. He personalizes the interrelationships and consequences of the interaction between self-interest and public policy in the American economy.

This aspect of Gain—that it stimulates in its readers economically well-informed questions about society—distinguishes it from the economics ‘genre’ novels. Novels of the Marshall Jevons (1993, 1998) type (Murder at the Margin, A Deadly Indifference, and Fatal Equilibrium) employ an economist-as-detective approach. This is consistent with the idea that economics consists largely of puzzle solving.¹⁸ Novels such as Russell Roberts’ (2002) The Invisible Heart: An Economic Romance use the format to debate or promote a particular point of view: free-market economics in Roberts’ case. Some of the novels in this genre suffer from stunted writing and seem contrived in order to convince the reader of the power of economics.

Powers touches on a vast array of economic issues—on long-run growth, innovation, markets, public policy, microeconomics, trade, division of labor, etc.—but does not contrive to develop them. He develops them as a natural part of his narrative, because he knows his theory and history. The economics of Gain are not only extremely well presented; they are also used to explain issues important to people’s everyday lives today and in the past. Powers offers an important examination of the deal we have made with the productive forces of capitalism, and the price that deal exacts on society.¹⁹ Thus, for an instructor, Gain is a good investment in

¹⁸ See, for example, Breit and Elzinga (2002).

¹⁹ In considering the work of Rand and Martineau Max Fletcher (1974: 368) notes that “most other writers have been suspicious of businessman and hostile to the business system, Miss Martineau and Miss Rand lionize the entrepreneur and parade the virtues of the free enterprise system.” Gain is most certainly not a polemic. In highlighting the many tradeoffs of capitalist growth Powers does a remarkable job of avoiding trite or obvious conclusions. The novel never reaches what one might call a resolution, instead it leaves to the reader to decide whether or not the nearly limitless material bounty provided by Clare, the giant chemical corporation, is worth the cancer it may have inflicted on Laura Bodey.
reading time since it can potentially be used in so many different kinds of courses to teach so many different lessons.

4. Using Gain, Some Examples

Our students read Gain as the course’s capstone experience. Students came to Gain having read much economics (usually in the form of early writers such as Adam Smith and Karl Marx), some history of economic thought, and literature from economists, lawyers, and others on the role of the corporation in modern economies. Our expectation was that as freshman with no stated interest in economics, the students needed some familiarity with costs, optimal scale of production, the division of labor, gains from trade, the role of institutions, different types of firms, etc. Ensuring that students were able to tease out properly the economics from Gain required instruction time. We scheduled roughly two weeks of class meetings to the novel. Students were assigned a paper topic on Gain. Lastly, students were encouraged to consider the lessons of the novel in their final class project (a research paper written in groups of four, presented to the rest of the class). Ultimately we would suggest to instructors that if Gain is going to be part of a class syllabus some class time be used to ensure students can properly apply the economics they have learned to the novel. One does not have to be a working economist to understand the important economic lessons in Gain, but students may have some difficulty seeing exactly how a particular passage illustrates a concept learned in class.

We now turn to providing some examples of how one could use Gain in a classroom. We develop three examples of text fragments and the topics to which they relate. Rather than developing something as specific as a class lesson, we simply examine how the relevant material could help illustrate concepts central to any standard principles course.

Basic Supply and Demand: Basic supply and demand theory is one of the simpler topics covered in a principles course. However, as anyone who has taught economics knows, it is difficult for a student to master price theory. Historically the civil war served as a catalyst for growth in some sectors of the North’s manufacturing base. In this period Clare benefits greatly by securing a large and steady customer base (the northern armies), “Overnight the Clare soap
works landed the largest, steadiest, and most demanding customer of its thirty-year existence” (142). At the same time, it had problems managing the wartime disruptions to its supply chain, “Company supply was a worse shambles than the Union’s. The Confederates sank their every fifth seaborne shipment, and the calculating British threatened to cut off soda ash entirely” (143). Powers details the result of this simultaneous shift of demand and supply,

By laws older than speech, a bar of Native Balm rose from seven and a quarter cents to well over fifteen. Price measured how costly it was to extract soap from its opposite. Human need sank its shaft into the surrounding chaos and called every hunk of ore it hauled to the surface precious. The harder to mine, the more the thing was worth. (143-44)

Powers is careful to make the point that, in the context of an increase in input prices, this rise in goods prices is not necessarily a boon to Clare. Instead the increase in the price of a good simply reflects the increased cost of production. Powers goes on to establish the source of these price increases, separating cost and demand influences on prices.

The dynamics of innovation in a competitive market are developed as the revenues from Clare’s new army contracts are poured into research and growing the company. The owners find that to consume any profits is to “stand still,” and in competitive markets this is essentially suicide. We also see the more macro effects on manufacturing, “On the road from Manassas to Appomattox, industry learned its marching formations. The war forced manufacture into ever-widening markets, over whose birth the delicate midwife of carnage hovered” (142-43).

These and other passages—of which there are many (see appendix)—could be read before a session on demand and supply to provide a reference for students to help follow a graphical treatment. They could also be reread after a session on supply and demand to indicate to students how many forward linkages such a relative price change could have with the rest of the economy. For example, “Soon the Clares were making glycerin at half the cost of British imports. As the price of the elixir fell, its uses multiplied. At the right price, all manner of
other manufactures lined up to place orders: inkers, decanters of boot black, papermakers, printers. Word spread of the Clare grubstake, and entrepreneurs from far and wide descended on the claim.” (108). One could also imagine using such passages to help illustrate development dynamics and the linkages between different industries.

Externalities: Laura Bodey’s cancer, which she may or may not have contracted from Clare’s emissions into the local environment, poses no trivial example of how costly externalities can be, and the many forms they may take. In fact, students may be reticent to apply such a textbook model to Laura. After all, Laura died and left behind two children, does the standard textbook discussion of externalities really apply to such life and death outcomes? Or does it need to be amended to make sense of such a dramatic outcome? If so, how?

While it is never indicated with any surety that Clare is responsible for Laura’s cancer, the possibility hangs over and motivates large portions of the novel, “The breeze that flushes these rooms imports its own aromas: stubborn lilacs and stultifying magnolias. Ozone from dry lightning, forty miles distant. Swiss almond decaf from the new coffee shop, half an hour from its red-eye opening. Organophosphates wafting in from the south farms. Undigested adhesives slipping up Clare’s smokeless stacks. The neighbors’ gerbil food and scoopable litter wafting over her fence in two parts per billion” (49). Later, the local newspaper details that high levels of toxic emissions plagues the county where Laura lives. The same story indicates that another resident of Lacewood, Viola Johns, has stopped hanging her clothes on the line in her backyard for fear of the emissions’ effects on her and her family. Laura resists the suggestion that the local company is responsible for her cancer, “Mine’s not like that. Dr. Jenkins said they don’t know what causes ovarian. It’s probably genetic” (139).

Instructors will be able to motivate not only discussions surrounding externalities with this material, but marginal decision making as well. While it is often easy for students to see the negative consequences of an externality, it can be tough to appreciate the benefits that accompany the production of a negative externality. Powers makes clear in his ‘analysis’ of Laura’s condition that there are clearly costs and benefits to Clare. Clare produces both
consumer goods (which we value) and pollution (which we do not). But even when Laura starts fully to consider that Clare’s presence in Lacewood may be linked to her cancer, as she stands considering fully her consumer lifestyle, the solution is still not obvious.

Floor by Gem-Guard. Windows by Cleer-Thru. Table by Colonial-Cote. The Bodey Mansion, that B-ticket, one-star museum of trade. But where else can she live? She vows a consumer boycott, a full spring cleaning. But the house is full of them. It’s as if the floor she walks on suddenly liquefies into a sheet of termites. They paper her cabinets. They perch on her microwave, camp out on her stove, hang from her shower head, Clare hiding under the sink, swarming her medicine chest, lining the shelves in the basement, parked out in the garage, piled up in the shed. ...Who made all these things? But she knows the answer to that one. They’ve counted every receipt, more carefully than she ever has. And wasn’t she born wanting what they were born wanting to give her? Every thought, every pleasure, freed up by these little simplicities, the most obvious of them already worlds beyond her competence. (303-04)

This narrative in Gain allows instructors to achieve multiple goals. It can motivate the topic by illustrating an externality’s true costs (Laura’s cancer is a horrible thing to read about). It also demonstrates that negative externalities most often come from the consumption of ‘goods’ we value. Finally, it can facilitate a discussion about how difficult it may be to ascertain exactly who is responsible for any given externality.

Production Theory and Economies of Scale: A central element of any class on industrialization or development concerns the transition from small-scale home-based production to large-scale factory-based production, an application of cost theory and market structure. In a Principles course much time is spent developing and applying different notions of cost and how they relate to such things as firm size and industry structure. Powers details, in the early years of Clare’s development, how the linking of major markets via rail increased the optimal scale of production, “They severed ties with now-unprofitable outlets, those glories of the canal age
that rail had siphoned off...Rail freed them to serve all sorts of previously isolated customers” (106). By increasing the size of the market, rail serves to increase the optimal scale of the firm, The firm was like some frugal bank client, reinvesting its dividends in itself...A dollar sunk into new heated dryers returned a dollar ten cents in increased productivity...When cash no longer found an immediate outlet in capital improvement, Resolve once or twice bought up a local competitor, put it out of business, and stripped its inventory of usable equipment...Wider distribution and greater efficiency kept them redoubling very four or five years. And a 16 percent growth rate per annum only served further to feed new economies of scale. Each time they increased their daily tonnage by half, it cost them half again what it cost on the last occasion.

This growth of Clare continues, with ups and downs, until reaching a size unmanageable by a single family, no matter how diligent. At that point it incorporates,

The law now declared the Clare Soap and Chemical Company one composite body: a single whole, and statutorily enabled person. Rambling on, Samuel reached back to quote Chief Justice John Marshall, whose death had long ago cracked the Liberty Bell. He sounded the classic definition that Marshall gave in Dartmouth College v. Woodward, a half century before: A corporation is an artificial being, invisible, intangible, and existing only in contemplation of law. (158)

And this leads to one of the central issues of the novel, the birth of the corporation and its existence as a person under the law. This section allows an instructor to pursue a traditional analysis of scale and production, using the material as an example. Or, more interestingly, the material allows an instructor to situate issues of cost and scale in a historical (the rise of mass production in the United States) and institutional (the laws concerning the incorporations) context.
We stress that these three examples are the tip of the iceberg. *Gain* is littered with material for any number of different economics topics.

5. Conclusion

We make a case for employing the novel as a device to enhance the teaching and learning of economics concepts within a traditional economics class. A novel is a self-contained thought experiment that explores interdependence; it can place economic concepts in a social, institutional, and historical context; it can provide a common thread running through a course that may otherwise feel disconnected; actions and their interrelated effects can be explored within the novel’s setting—a less confounding intermediate step to applying similar analysis to real world economic consequences of actions; it offers another means to attract students to how economists think. Finally we find the particular novel showcased here, Richard Powers’ *Gain*, to be well suited for the economics classroom. Powers knows of which he writes. He provides a rich environment in which there are no clear answers to perplexing private and public policy questions.
**Appendix One: Partial list of Quotations from Gain by Topic Illustrated**

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<tr>
<th>Examples/Themes</th>
<th>Quote, Reference</th>
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<tr>
<td>Trade, profits, role of relative prices</td>
<td>“The port of Fayal, in the Azores, turned whale oil into wine. A trip to the Sandwich Islands sufficed to change percussion-cap rifles into sandalwood. Everyone everywhere wanted what was only to be had somewhere else...Yet the man who moved these goods around the globe could not sell to Ohio. The prospect had no profit in it. The nine dollars that moved a ton of goods from Europe to Boston moved that same ton no more than thirty miles inland.” (10)</td>
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<td>“But above all else, he dealt in risk. Profit equaled uncertainty times distance. The harder it was to haul a thing to where it humanly belonged, the more one made.” (10)</td>
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<td>“They severed ties with now-unprofitable outlets, those glories of the canal age that rail had siphoned off. They pitched their lot with the chaotic spew of new lines, cuts connecting the hub with Albany and Vermont, routes like the Champlain and St. Lawrence, promising endless frontier. Rail freed them to serve all sorts of previously isolated customers. They hired commission brokers in Baltimore and fought to break into New York’s murderous market.” (106)</td>
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<td>Policy, taxation, imports:</td>
<td>“Samuel chafed against the injustice. America, he raged, had fought the Revolution over a tax now dwarfed by the one it levied on itself. Resolve, his cooler brother, pointed out that a second revolution would probably be prohibitively expensive. The punitive tariff aimed to protect new England’s infant textile industry. The fully integrated Waltham model factory brought whipper, willow, picker, lapper, breaker, winder, finisher, drawing frame, double speeder, stretcher, carder, throttle spinner, speeder, warper, dresser, loom, bleacher, printworks, cutter, sewer, and sundry other intermediaries into a continuous operation. Steam, water, thundering machinery, and small girls’ hands took production from fiber to finished garment. And tariff meant to shepherd that garment to market. Yet the tax wiped out all potential export profit by making it too expensive to haul any cargo back. Ships could not pay for themselves if empty for half their time at sea. The age of the all-purpose merchant was ending. Trade had lost its status as favored child. Law now preferred the bastard manufactory to the pedigreed countinghouse. Yet how could manufacture flourish, without trade?” (19)</td>
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<td>“The first shipment put in at Liverpool; a British customs agent instantly intercepted it. Certain that the shipper was undervaluing the stock in order to evade paying the lawful duty, the agent exercised the Crown’s prerogative and bought the entire lot, at the suspicious declared price, even before the soap could be offloaded from the ship.” (173)</td>
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<td>Entry tickets/shopping:</td>
<td>“Her virtual billboard sits out above the parking lot in front of the Member’s Discount Club. The store’s $25 annual screening fee nags at her conscience, but there’s no cheaper place. Tonight’s dinner, in fact, is a Member’s Exclusive. The Cool Juice comes from Bounty Mart. Bounty’s the easiest place to reduce the fat and cut back on the sodium. But all the rest is Discount Club: the fifteen-bean Old Almanac soup, the skip-dippers, the frozen melon medley. She’s probably saved close to a fifth of the meal cost right there. And if Tim and Ellen let her get away with that twice a week, there’s your membership costs back in a little over a month and a quarter.” (30-1)</td>
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<td>Dynamics of demand shock/economies of scale in competitive industry:</td>
<td>“What cash they could secretly stockpile went toward acquiring defaulting competitors for as little ten cents on the dollar. The fewer the rivals lasting until recovery, the easier recovery would come. The Clare sons moved through the massacre, picking opportunities for philanthropy like the Lord’s Passover angel spotting unmarked houses. All the while, Samuel bargained with and rebuffed their own creditors, stalling...”</td>
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<th>Impacts of technology:</th>
<th>“Jephthah Clare’s sons were the last generation to assume that time would bring no fundamental changes to the game of existence. But on some unknown afternoon during Ben Clare’s long voyage, a new two-stroke engine had somehow split the future from its mother tenses and set it up, like some ingrate rebel colony, on independent soil. The country did itself over in steam. Steam: the world’s first new power source since the dawn of time: so slight, so obvious, so long overlooked that no one could say whether the engine was discovered or invented. A separate condensing chamber and governor—twinned iron planets rising to dampen with greater drag the faster they spun—with these small changes, time took off. Life now headed, via a web of steam-cut canals, deep into the interior. No later chaos would ever match this one for speed and violence: the first upheaval of advancement without advance warning. The back-pressure of governed steam eructed in railroad. Rail threatened to render distance no more than a quaint abstraction. America at last split open its continental nut. Populace consolidated; the week vanished into hours. In turn, the energies released by this energy launched ocean steamships and set machine presses stamping out the tools needed to make their own replacements. Infant factories forged a self-cleaning steel plow, which beat a reaper, which called out for vulcanized rubber, which set in inexorable motion a sewing machine that left half of Boston out of work, turning upon itself, poor against poorer.” (67)</th>
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<tr>
<td>Fall in relative prices:</td>
<td>“Soon the Clares were making glycerin at half the cost of British imports. As the price of the elixir fell, its uses multiplied. At the right price, all manner of other manufactures lined up to place orders: inkers, decanters of boot black, papermakers, printers. Word spread of the Clare grubstake, and entrepreneurs from far and wide descended on the claim.” (108)</td>
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<td>“For four years, the price of Native Balm inflated absurdly. True, Clare’s own costs also ballooned. The Confederates sank their every fifth seaborne shipment, and the calculating British threatened to cut off soda ash entirely. By laws older than speech, a bar of Native Balm rose from seven and a quarter cents to well over fifteen. Price</td>
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“These financiers until one by one they, too, went under, with no one to take up demands for payment.” (47)

“Big soap required bigger soap works. At the same time, the rise of a national market decimated the number of soapmakers. From thousands of cottage industries at the moment when Resolve, Samuel, and Ennis built their first kettle, the number had skidded to three hundred and was still plummeting. Before Philadelphia, Clare seemed destined to be lost in the shakeout, its Native Balm heading the way of other sentimental curios.” (196)

“Rail steadied the farmer’s year like a hand laid upon the turbulent heel of heaven. It standardized by fiat, without recourse to Congress, the countless different times the nation had run on. Until the train, harvest had been a wild, speculative ride in a wagon full of sprouting and rotting grain. More than once, young Gifford sold his year’s labor for what could only generously be called nothing. Rail opened up a perpetual grain auction only a few hours away, and tied Gifford to it. The train passed over Gifford’s Illinois like the wave of some magic wand. New towns leaped up before it, spring out of fields like pheasants flushed out by dogs. The Galena and Chicago Union baled Gifford’s fate and bound him to the West’s metropolis. Granted, Chicago paid the lowest prices on grain in creation. But at least it always paid, and in coin, not rotting promises...Gifford watched his life’s capital flow through the Chicago grain market. He lived and died by that auction’s smallest ripple. After the war, one of those glaringly self-evident inventions came along to transform the way that human beings organized their fate in this world. To Gifford, the new grain elevators were nothing less than giant dams that gathered the West’s trickles of grain into a torrent large enough to drive the mill wheel of eternal prosperity.” (207)
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measured how costly it was to extract soap from its opposite. Human need sank its shaft into the surrounding chaos and called every hunk of ore it hauled to the surface precious. The harder to mine, the more the thing was worth. When the warm-ups ended and the full-fledged program of apocalypse at last arrived, collapse itself would doubtless prove the greatest value-added reseller that civilization could hope for.” (143-144)

**Incorporation:**

"The operation had grown too large, profit had gone too wayward for any other solution. A few men no longer sufficed to run the kettles and handle the sales. Business now far outstripped the single life’s span. Continued competition required a new kind of charter. Survival offered Clare no alternative but incorporation...The city of million-spindled mills outstripped the hand of man as much as man outstripped the animals. When risks were distributed and liability defrayed, what might collective humanity not accomplish? The shattering bounty that steam-driven factories stamped out required an institution to house it. Civilization had stumbled upon that institution, one that might take it anywhere at all. The race had learned how to build a combine to do the endless bidding of existence. And the work of this compound organism outstripped the sum of its cells. Enterprise’s long-evolving body now assembled goods beyond any private life’s power to manufacture.” (154-55)

"Fortunately, Clare Soap’s president did not need to trouble himself with labor or retail or equipment or science. Such was the glory of governance by chain of command. The incorporated firm matured to where each business task now fell to someone with some skill in the matter. For almost every concern, a son or nephew or clever foreman.” (166)

**Institutional innovation:**

"In the space of a few years, Gifford watched these wood and iron hulks turn a wasteful trade in discrete seed into continuous traffic in abstraction. Corn was no longer a mere cereal but liquid cash: the silver certificate of the vegetative kingdom. Wheat was not bread alone but freely tradable chits, swapped a dozen times even before the kernels were stored...At the Board of Trade, crops dissolved into the idea of produce. The Exchange promoted grain to pure exchangeability. On the trading floor, a man could buy and sell not only the amber waves themselves but also another man’s ability to deliver the sheaves at some date in the now-specified future. Gifford pushed the shape of that abstracting process to its logical extreme. "Change did not trade in the thing so much as in the thing’s price. He decided that there must be a way to trade in the price of price itself.” (207-8)

**Horizontal and Vertical integration:**

"Since the first Roxbury works, the Clares had pursued horizontal integration. Samuel and Resolve had delighted in buying up their strapped local competitors to grab their equipment, sack their inventory, steal their skilled labor, or simply put them out on the stoop. Laissez-faire and the rise of public companies made the horizontal game at once wider and more nuanced. Douglas now attempted vertical integration on a vast scale. He pursued Neeland’s great chemical loop, with the entire firm as but one reagent. Those manufactures who survived the scramble to century’s end would have to make their own sources and buy their own outlets. And in between start and finish, they would need to make one process’s ends into another’s means.” (219)

**Competition:**

"Darwin had shown competition to be the engine by which species honed the varius skills of existence. Competition had turned America, in the space of five generations, from homespun backwoodsman to the rival of European nations. Direct competition between brands within Clare could only serve to strengthen the firm in the most desirable manner: from the inside out.” (236)
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