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The Economic Naturalist

Robert H. Frank

About the Book

DISCOVER THE SECRETS BEHIND HUNDREDS OF EVERYDAY ENIGMAS

Why is there a light in your fridge but not in your freezer?

Why do 24-hour shops bother having locks on their doors?

Why did Kamikaze pilots wear helmets?

The answer is simple: economics

Economics doesn't just happen in classrooms or international banks. It is everywhere and influences everything we do and see, from the cinema screen to the streets. It can even explain some of life's most intriguing enigmas.

For years, economist Robert Frank has been encouraging his students to use economics to explain the strange situations they encounter in everyday life, from peculiar product design to the vagaries of sex appeal. Now he shares the most intriguing - and bizarre - questions and the economic principles that answer them to reveal why many of the most puzzling parts of everyday life actually make perfect (economic) sense.

About the Author

Robert H. Frank is the Henrietta Louis Johnson Professor of Management and Professor of Economics at Cornell University's Johnson Graduate School of Management. His previous books include *The Winner-Takes-All Society* (with Philip Cook), *Luxury Fever* and *Principles of Economics* (with Ben Bernanke). Frank's many awards include the Apple Distinguished Teaching Award and the Leontief Prize for Advancing the Frontiers of Economic Thought.

Praise for *The Economic Naturalist*

'Fascinating . . . provides the answers to some of life's quirkiest conundrums'
Daily Mail

'Explains how cold, hard cash really does make our world go round' *Independent*

'Can be returned to again and again like one of those all-you-can-eat buffets'
New York Times

'Don't miss this addictive book. As Robert Frank and his students figured out dozens of everyday puzzles together, they produced ideas that are charming, curious, educational and lots of fun. Wonderful stuff' Tim Harford, author of *The Undercover Economist* and *The Logic of Life*

'Smart, snappy, and delightful. Bob Frank is one of America's best writers on economics' Tyler Cowen, author of *Discover Your Inner Economist*

'Fascinating, mind-expanding, and lots of fun' Steven Pinker, author of *The Blank Slate*

'Robert H Frank's economic guidebook unlocks everyday design enigmas'
International Herald Tribune

'Fun and fascinating! At times it'll remind you of a Seinfeld routine - "Did you ever wonder why baseball managers wear uniforms but basketball coaches wear suits?" - except that Bob Frank also gives you the real answers' Steven Strogatz, author of *SYNC*

As amusing to read as one of Jay Leno's joke books, but Bob Frank's questions and answers are not jokes. They represent pithy observations about our economic lives that will give readers an appreciation of the real substance of economic reasoning' Robert J Shiller, author of *The New Financial Order* and *Irrational Exuberance*

'Frank's new book shows that, when you ask students to look around, they see interesting things; and, sure enough, basic economic concepts can usually give a plausible account of actions and outcomes. This is an excellent way for students to learn economics. To tell the truth, it is also a useful correction to the rest of us' Robert Solow, Nobel Laureate in Economics

ROBERT H. FRANK

THE ECONOMIC NATURALIST

Why Economics Explains Almost
Everything



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Version 1.0
Epub ISBN 9780753544976
www.randomhouse.co.uk

First published in paperback in Great Britain in 2008 by
Virgin Books Ltd
Thames Wharf Studios
Rainville Rd
London W6 9HA

First published in the United States in 2007
by Basic Books, a Member of the Perseus Books Group

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A catalogue record for this book is available from the British Library.

ISBN 978 0 7535 1338 5

*For
Thomas C. Schelling*

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Acknowledgements

When I first started teaching introductory economics, a senior colleague advised me to begin each class with a joke. It would start students off in a good mood, he explained, and make them more receptive to the ensuing lecture. I never followed his advice. It wasn't that I thought he was wrong in principle. Rather, I thought it would be too hard to come up with a relevant joke each time and felt that telling an irrelevant one would just be pandering.

As luck would have it, however, I stumbled upon a joke that seems just the right vehicle to launch this book. The joke is set in Boston in New England, a city known for its learned cab drivers, many of them dropouts from Harvard and MIT:

A woman lands at Logan Airport, grabs her luggage, and jumps into a cab, hungry for a good New England seafood dinner. 'Take me to a place where I can get scrod,' she tells the driver.

Eye-brow arched, the cabbie turns and says, 'That's the first time I've heard anyone say that in the pluperfect subjunctive.'

Few people actually know what the pluperfect subjunctive tense is. I didn't, or didn't realise I did, so I looked it up on the internet:

The pluperfect subjunctive (or past perfect subjunctive) tense is used to express a hypothetical situation or an action which is contrary to reality. In this case, the verb in the main clause is conjugated in the conditional form and it is necessary to use the subjunctive in the subordinate clause.

Here's an example that will be familiar to anyone who's ever pushed the snooze button once too often: 'If I hadn't overslept, I wouldn't have missed my train.'

As is clear from the definition and example, the woman in the joke didn't actually use the pluperfect subjunctive tense

at all. If the joke works, it is only because most of us haven't the foggiest idea what this tense is.

Does it matter? Some psychologists once theorised that people couldn't engage in clear counterfactual thinking unless they knew the technical details of the various subjunctive tenses. But this claim doesn't withstand scrutiny. Notice, for instance, that although most sports commentators don't seem to know the pluperfect subjunctive (or at least choose not to use it), they manage perfectly with counterfactual reasoning. 'Beckham scores the penalty, the English team doesn't lose in extra time.'

Knowing about the pluperfect subjunctive is not a bad thing. But if learning to speak a new language is your goal, the time and effort required to learn the explicit technical details of this tense would be far better spent in other ways. Courses that focus most of their energy on such details are no fun for students, and they're also astonishingly ineffective.

I took four years of Spanish lessons at secondary school and three terms of German at college. On those courses, we spent a lot of time on the pluperfect subjunctive tense and other grammatical arcana that instructors thought important. But we didn't learn to speak. When I travelled in Spain and Germany, I had great difficulty communicating even basic thoughts in those languages. Many friends have described similar experiences.

My first inkling that there was a more effective way to learn languages came during the instruction I received before serving as a US Peace Corps volunteer in Nepal. The programme lasted only thirteen weeks and was completely different from my earlier language courses. It never once mentioned the pluperfect subjunctive. Its task was to teach us to speak Nepali, and mastering arcane tenses had no place on the critical path to that goal. The method of instruction was to mimic the way children learn to speak their native language.

Our instructor began with simple sentences and got us to repeat them multiple times. The first was, 'This hat is expensive'. Since shoppers bargain for everything in Nepal, it was a useful sentence. The next step was to announce a different noun - say, socks - and we would have to respond on the fly with the Nepali sentence for 'These socks are expensive'. The goal was to get us to respond without thinking about it.

In brief, instructors started with a simple example from a familiar context, had us drill it several times, then got us to do slight variations on it, practising again. Once we could function on our own at the current level - but not before - they would push us a little further.

The programme's responsibility was to make sure we were up and running after thirteen weeks. My fellow volunteers and I had to teach science and maths in Nepali shortly after arriving in the country. And starting from zero, we did it. The process itself created a sense of empowerment I had never experienced on traditional language courses.

So my first thanks go to my Nepali language instructors of long ago, who opened my eyes to the remarkable effectiveness of the less-is-more approach to learning. As my students and I have discovered during the ensuing decades, this approach can also transform the experience of learning the core ideas of economics.

Students on most introductory economics courses spend much of their time grappling with the economics equivalent of the pluperfect subjunctive tense. In contrast, the economics ideas you will encounter in this book appear only in the context of examples drawn from familiar experiences they help illuminate. Learning economics is like learning to speak a new language. It's important to start slowly and see each idea in multiple contexts. If you discover that this way of learning trumps the one employed on your college introductory course, tip your hat to my Nepali language instructors.

This book is the product of many fine minds. Hal Bierman, Chris Frank, Hayden Frank, Srinagesh Gavirneni, Tom Gilovich, Bob Libby, Ellen McCollister, Phil Miller, Michael O'Hare, Dennis Regan and Andy Ruina will recognise the many ways in which their comments on earlier drafts have improved the book. I cannot thank them enough. Others were helpful at a further remove. Some readers will recognise the ideas of my former teacher George Akerlof and former colleague Richard Thaler in many of the examples in the book. But my biggest intellectual debt is to Thomas Schelling, the greatest living economic naturalist. I dedicate this book to him.

I'm grateful as well to Andrew Wylie and William Frucht, without whose efforts this book probably would not have ended up in your hands. I also thank Piyush Nayyar, Elizabeth Seward, Maria Cristina Cavagnaro and Matthew Leighton for invaluable research assistance, and Chrisona Schmidt for superb copyediting.

It was a pleasure to work with Mick Stevens, whose drawings illustrate many of the examples in the book. I am not much given to envy, but if there is a career I can imagine having been more fun than my own, it is his. Over the years, I have tried, whenever possible, to use simple drawings or other illustrations that relate in some way to the examples I discuss in class. For reasons that learning theorists could probably explain, this practice seems to root ideas more firmly in students' minds, even though my drawings are often comically inept and contain no specific economic content. I encourage students to produce their own crude illustrations to accompany the new ideas they encounter. 'Doodle on your notes!' I tell them. What a wonderful luxury it was to describe ideas for drawings to one of my favourite *New Yorker* cartoonists and then have them appear, usually only days later, in much better form than I dared imagine.

I am especially grateful to the John S. Knight Institute for Writing in the Disciplines for enlisting me on its programme at Cornell in the early 1980s. Except for my participation in that programme, I never would have stumbled upon the economic naturalist writing assignment that led to this book.

But most importantly, I want to thank my students for the spirited essays that constitute the inspiration for the book. Only a small fraction of the questions they posed made it into the final manuscript. The ones that did are so splendid because of the effort that went into the thousands of essays from which I chose them.

A majority of the questions included in this volume were directly inspired by student essays. Following each, I list the student's name in parentheses. A handful of questions were inspired by articles or books, most of them written by economists, and the relevant author's name also appears in parentheses after those. Most of the questions with no author credit are based either on examples from my own writings or on examples that I have developed for classes.

There remain three questions, however, that were inspired by student essays that I have been unable to locate. I list these questions here, in the hope that the authors will step forward so that I can credit them properly in subsequent printings: (1) Why is milk sold in rectangular containers, while soft drinks are sold in round ones? [Chapter 1](#); (2) Why do many bars charge customers for water but give them peanuts for free? [Chapter 2](#); and (3) Why do car hire companies impose no penalty for cancelling a reservation at the last minute, whereas many hotels and all airlines impose significant cancellation charges? [Chapter 4](#).

Introduction

Why do the keypad buttons on drive-up cashpoint machines have Braille dots? The patrons of these machines are almost always drivers, none of whom are blind. According to my former student Bill Tjoa, cashpoint manufacturers have to make keypads with Braille dots for their walk-up machines anyway, and so it is cheaper to make all machines the same way. The alternative would be to hold two separate inventories and make sure that each machine went to the right destination. If the Braille dots caused trouble for sighted users, the extra expense might be justified. But they do not.

Mr Tjoa's question was the title of one of two short papers he submitted in response to the 'economic naturalist' writing assignment in my introductory economics course. The specific assignment was 'to use a principle, or principles, discussed in the course to pose and answer an interesting question about some pattern of events or behaviour that you personally have observed'.



Braille dots on keypad buttons of drive-up cashpoint machines: why not?

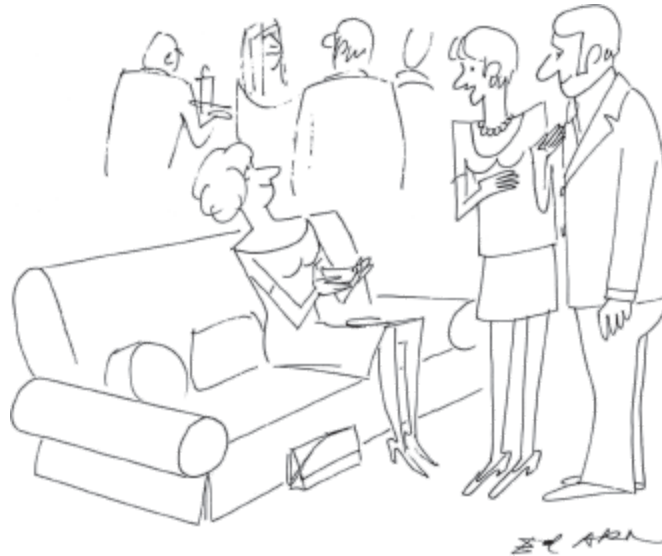
'Your space limit,' I wrote, 'is 500 words. Many excellent papers are significantly shorter than that. Please do not lard your essay with complex terminology. Imagine yourself talking to a relative who has never had a course in economics. The best papers are ones that would be clearly intelligible to such a person, and typically these papers do not use any algebra or graphs.'

Like Bill Tjoa's question about cashpoint keypads, the best ones entail an element of paradox. For example, my all-time favourite was submitted in 1997 by Jennifer Dulski, who asked, 'Why do brides spend so much money - often thousands of pounds - on wedding dresses they will never wear again, while grooms often rent cheap suits, even though they will have many future occasions that call for one?'

Dulski argued that because most brides wish to make a fashion statement on their wedding day, a hire company would have to carry a huge stock of distinctive gowns - perhaps forty or fifty in each size. Each garment would thus be hired only infrequently, perhaps just once every four or five years. The company would have to charge a hire fee greater than the purchase price of the garment just to cover its costs. And since buying would be cheaper, no one would rent. In contrast, because grooms are willing to settle for a standard style, a hire company can serve this market with an inventory of only two or three suits in each size. So each suit gets hired several times a year, enabling a hire fee that is only a fraction of its purchase price.

This book is a collection of the most interesting economic naturalist examples I have collected over the years. It is intended for people who, like Bill Tjoa and Jennifer Dulski, take pleasure in unravelling the mysteries of everyday human behaviour. Although many consider economics an arcane and incomprehensible subject, its basic principles

are simple and full of common sense. Seeing these principles at work in the context of concrete examples provides an opportunity to master them without effort.



'I'd like to introduce you to Marty Thorndecker. He's an economist, but he's really very nice.'

DRAWING BY ED ARNO © 1974 THE NEW YORKER MAGAZINE, INC.

Unfortunately that is not how economics is usually taught on college courses. Shortly after I began teaching at Cornell University, several friends living in different cities sent me copies of the Ed Arno *New York* cartoon on the previous page.

Cartoons are data. If people find them funny, that tells us something about the world. Even before Arno's cartoon appeared, I had begun to notice that when people I met at social gatherings asked me what I did for a living, they seemed disappointed when I told them I was an economist. I began asking why. On reflection, many would mention having taken an introductory economics course years before that had 'all those horrible graphs'.

Relatively few undergraduates study economics. A negligible fraction pursues Ph.D. work in economics. Yet

many introductory economics courses, abrim with equations and graphs, are addressed to that negligible fraction.

The result is that most students on these courses don't learn much. When students are given tests designed to probe their knowledge of basic economics six months after taking the course, they do not perform significantly better than others who never took an introductory course. This is scandalous. How can a university justify charging large amounts of money for courses that add no value?

Even the most basic principles of economics don't seem to be getting across. If you ever took an economics course, you at least heard the term 'opportunity cost'. The opportunity cost of engaging in an activity is the value of everything you must give up to pursue it.

To illustrate, suppose you won a free ticket to see an Eric Clapton concert tonight. You can't resell it. Bob Dylan is performing on the same night and his concert is the only other activity you are considering. A Dylan ticket costs £40 and on any given day you would be willing to pay as much as £50 to see him perform. (In other words, if Dylan tickets sold for more than £50, you would pass on the opportunity to see him even if you had nothing else to do.) There is no other cost of seeing either performer. What is your opportunity cost of attending the Clapton concert?

The only thing of value you must sacrifice to attend the Clapton concert is seeing the Dylan concert. By not attending the Dylan concert, you miss out on a performance that would have been worth £50 to you, but you also avoid having to spend £40 for the Dylan ticket. So the value of what you give up by not seeing him is $£50 - £40 = £10$. If seeing Clapton is worth at least £10 to you, you should attend his concert. Otherwise you should see Dylan.

Opportunity cost is, by consensus, one of the two or three most important ideas in introductory economics. Yet we now have persuasive evidence that most students do not master this concept in any fundamental way. The economists Paul

Ferraro and Laura Taylor recently posed the Clapton/Dylan question to groups of students to see whether they could answer it. They gave their respondents only four choices:

- a. £0
- b. £10
- c. £40
- d. £50

As noted, the correct answer is £10, the value of what you sacrifice by not attending the Dylan concert. Yet when Ferraro and Taylor posed this question to 270 undergraduates who had previously taken a course in economics, only 7.4 per cent of them answered it correctly. Since there were only four choices, students who picked at random would have had a correct response rate of 25 per cent. A little bit of knowledge seems to be a dangerous thing here.

When Ferraro and Taylor posed the same question to eighty-eight students who had never taken an economics course, 17.2 per cent answered it correctly – more than twice the correct response rate as for former economics students, but still less than chance.

Why didn't the economics students perform better? The main reason, I suspect, is that opportunity cost is only one of several hundred concepts that professors throw at students during the typical introductory course, and it simply goes by in a blur. If students don't spend enough time on it and use it repeatedly in different examples, it never really sinks in.

But Ferraro and Taylor suggest another possibility: the instructors who teach economics may not have mastered the basic opportunity cost concept themselves. When the researchers posed this same question to a sample of 199 professional economists, only 21.6 per cent chose the correct answer; 25.1 per cent thought the opportunity cost

of attending the Clapton concert was £0, 25.6 per cent thought it was £40, and 27.6 per cent thought it was £50.

When Ferraro and Taylor examined the leading introductory economics textbooks, they discovered that most did not devote sufficient attention to the opportunity cost concept to enable students to answer the Dylan/Clapton question. They also noted that the concept does not receive patient, in-depth treatment in textbooks beyond the introductory level and that the term 'opportunity cost' does not even appear in the indexes of leading graduate microeconomics texts.

Yet opportunity cost helps explain a host of interesting behaviour patterns. Consider, for example, the widely remarked cultural differences between a large city like London and smaller towns in the north of England, for example. Why do residents of Paddington tend to be rude and impatient, but residents of Preston friendly and courteous?

You could argue with the premise, of course, but most people seem to find it roughly descriptive. If you ask for directions in Preston, people stop and help you; in Paddington, they may not even make eye contact. Because London has a high wage rate and a rich menu of things to do, the opportunity cost of people's time is very high there. So perhaps it is only to be expected that Londoners would be a little quicker to show impatience.

I call my students' writing assignment the 'economic naturalist' because it was inspired by the kinds of questions that an introductory course in biology enables students to answer. If you know a little evolutionary theory, you can see things you didn't notice before. The theory identifies texture and pattern in the world that is stimulating to recognise and think about.

For example, here is a standard Darwinian question: Why are males bigger than females in most vertebrate species? Bull elephant seals, for instance, can exceed 6 metres (20

feet) in length and weigh 2,700 kilograms (430 stone) – as much as a large car – whereas female elephant seals weigh only 360 to 550 kilograms (56 to 86 stone).

Similar sexual dimorphism is observed in most vertebrate species. The Darwinian explanation is that most vertebrates are polygynous (meaning that males take more than one mate if they can), and so males must compete for access to females. Bull elephant seals pummel one another on the beach for hours at a time until one finally retreats, bloodied and exhausted.

The winners of these battles command nearly exclusive sexual access to harems of as many as one hundred females. This is a Darwinian prize of the first order, and it explains why males are so much bigger. A male with a mutant gene for larger size would be more likely to prevail in fights with other males, which means that this gene would appear with higher frequency in the next generation. In short, the reason males are so large is that small males seldom gain access to females.



Why is the bull elephant seal so much bigger than the cow?

PHOTO BY STAN RUSSELL

A similar explanation accounts for the large tail displays in peacocks. Experiments have demonstrated that peahens

prefer peacocks with longer tail feathers, which are thought to be a signal of robust health, since parasite-ridden males cannot maintain a bright, long tail.

For both the large bull elephant seal and the peacock with a long tail display, what is advantageous to males individually is disadvantageous to them as a group. A 2,700-kilogram seal, for example, finds it harder to escape from the great white shark, its principal predator. If all bulls could reduce their weight by half, each would be better off. The outcome of each fight would be the same as before, yet all would be better able to escape from predators. Similarly, if all peacocks' tail displays were reduced by half, females would still choose the same males as before, yet all peacocks would be better able to escape from predators. But bull elephant seals are stuck with their massive size and peacocks are stuck with their long tail feathers.



The exception that proves the rule: in the monogamous albatross, males and females are about the same size.

PHOTO BY DAVID LEVINE

Of course evolutionary arms races do not continue indefinitely. At some point, the added vulnerability inherent in larger size or longer tail displays begins to outweigh the benefit of increased access to females. That balance of

costs and benefits is reflected in the characteristics of surviving males.

The biologist's narrative is interesting. It coheres. And it seems to be right. Thus if you look at monogamous species, ones in which males and females pair off for life, you don't see sexual dimorphism. This is 'the exception that proves the rule' in the old-fashioned sense of the verb 'to prove': it tests the rule. Polygyny led to the prediction that males would be bigger. And in its absence males aren't bigger. For example, because the albatross is monogamous, theory predicts that males and females will be roughly the same size, which in fact they are.

The biologist's narrative regarding sexual dimorphism has legs. It is easy to remember and satisfying to recount to others. If you can tell such stories and understand why they make sense, you have a far better grasp of biology than if you've simply memorised that birds belong to Class Aves. It is the same with narrative explanations based on principles of economics.

Most introductory economics courses (and my own was no exception in the early days) make little use of narrative. Instead, they inundate students with equations and graphs. Mathematical formalism has been an enormously important source of intellectual progress in economics, but it has not proved an effective vehicle for introducing newcomers to our subject. Except for engineering students and a handful of others with extensive prior training in maths, most students who attempt to learn economics primarily through equations and graphs never really grasp that distinctive mind-set known as 'thinking like an economist'. Most of them spend so much effort trying to make sense of the mathematical details that the intuition behind economic ideas escapes them.

The human brain is remarkably flexible, an organ with the capacity to absorb new information in myriad different forms. But information gets into most brains more easily in

some forms than others. In most cases, students process equations and graphs only with difficulty. But because our species evolved as storytellers, virtually everyone finds it easy to absorb the corresponding information in narrative form.

I stumbled onto this insight by chance some twenty years ago when I participated in the 'writing across the disciplines' programme at my university, which was inspired by research showing that one of the best ways to learn about something is to write about it. As Walter Doyle and Kathy Carter, two proponents of the narrative theory of learning, have written, 'At its core, the narrative perspective holds that human beings have a universal predisposition to "story" their experience, that is, to impose a narrative interpretation on information and experience.' Psychologist Jerome Bruner, another narrative learning theorist, observes that children 'turn things into stories, and when they try to make sense of their life they use the storied version of their experience as the basis for further reflection. . . . If they don't catch something in a narrative structure, it doesn't get remembered very well, and it doesn't seem to be accessible for further kinds of mulling over.'

In short, the human brain's speciality seems to be absorbing information in narrative form. My economic naturalist writing assignment plays directly to this strength. It calls for the title of each student's essay to be a question. For three reasons, I have found it useful to insist that students pose the most interesting questions they can. First, to come up with an interesting question, they must usually consider numerous preliminary questions, and this itself is a useful exercise. Second, students who come up with interesting questions have more fun with the assignment and devote more energy to it. And third, the student who poses an interesting question is more likely to tell others about it. If you can't actually take an idea outside the