

MEATONOMICS

How the Rigged Economics of
Meat and Dairy Make
You Consume Too Much—
and How to Eat Better, Live
Longer, and Spend Smarter

Conari
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Press



Conari Press

First published in 2013 by Conari Press, an imprint of
Red Wheel/Weiser, LLC
With offices at:
665 Third Street, Suite 400
San Francisco, CA 94107
www.redwheelweiser.com

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ISBN: 978-1-57324-620-0

Library of Congress Cataloging-in-Publication Data Simon, David Robinson.
Meatonomics : how the rigged economics of meat and dairy make you consume too
much-and how to eat better, live longer, and spend smarter / David Robinson Simon.
pages cm

Includes bibliographical references and index.

ISBN 978-1-57324-620-0

1. Meat industry and trade--Government policy--United States. 2. Dairy products
industry--Government policy--United States. I. Title.

HD9416.S56 2013
338.1'7600973--dc23

2013016514

Cover design by Jim Warner
Cover photograph © Kitch Bain/shutterstock.com
Interior by Maureen Forsy Happenstance Type-O-Rama
Typeset in Warnock Pro and Universe

Printed in Canada
F

10 9 8 7 6 5 4 3 2 1

The paper used in this publication meets the minimum requirements of the American
National Standard for Information Sciences—Permanence of Paper for Printed Library
Materials Z39.48-1992 (R1997).

To K. B. B.



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CONTENTS

Author's Note *xiii*

Introduction *xv*

Part I: Influencing the Consumer

1. The Brave New World of Government Marketing 3

2. Massaging the Message: Shaping Consumer Beliefs . . . 16

3. Sausage Making and Lawmaking: Influence in the
Political Process 31

4. Regulatory Conflict and Consumer Confusion 55

Part II: The Hidden Costs of Meatonomics

5. Feeding at the Subsidy Trough 73

6. Diseases and Doctor Bills 90

7. The Sustainability Challenge 111

8. The Costs of Cruelty 134

9. Fishing Follies 144

10. Recipes for Change 162

Acknowledgments 187

Appendix A: Animal Foods and Human Health 189

Appendix B: Summary of the Annual Externalized
Costs of US Animal Food Production (in billions) 202

Appendix C: Economic Effects of Proposed Meat
Tax and Support Changes 204

Appendix D: Factory Farming Practices 213

Endnotes 229

Index 281



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AUTHOR'S NOTE

Let me begin by getting a couple things off my chest. For starters, economics is subjective. John Kenneth Galbraith said the field was one in which “hope and faith coexist with great scientific pretension.” The figures I propose for the costs of meatonomics are based on data that are slippery and hard to find, and the calculations themselves can vary based on how the math is done. Still, I think it’s worthwhile to try. I’ve sought to present figures that I believe are reasonable and as accurate as possible, and in each case, to explain where they came from. Nevertheless, I’m the first to admit that this book’s cost figures are, like almost everything in economics, subjective estimates.

Furthermore, while parts of this book deal with economics, medicine, and ecology, I’m not an economist, a doctor, or an ecologist. I’m a lawyer, and that’s why I like to write disclaimers. A number of specialists in these areas have read and commented on the manuscript, which I hope means it contains no glaring errors. The book’s analysis and conclusions are supported by research cited in more than seven hundred endnotes. Most of this information comes directly from government reports or published, peer-reviewed studies.

If you want to understand what’s going on in the animal food industry, sometimes it helps to be an expert. But more often, you just need to keep your eyes and ears open, and approach the subject with what some Zen practitioners call “beginner’s mind.” As Zen master Shunryu Suzuki observed, “In the beginner’s mind there are many possibilities, but in the expert’s mind there are few.”¹



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INTRODUCTION

Imagine a bakery that sells every cake, pie, or loaf of bread for a dollar less than it costs to make. It's a challenging business model, to say the least. But instead of going out of business, say the shop flourishes and expands, adding more ovens and increasing output for years. Impossible, right?

For a bakery, maybe. But not for America's big producers of meat, fish, eggs, and dairy. The animal food industry actually uses this contrarian business model with surprising success. Take hog farmers, who routinely spend an average of eight dollars more raising each pig than the animal yields when sold.¹ The farmers, at least the big corporate operators, are in hog heaven. That's because government subsidies actually make this business model profitable for those at the top. For the same reason, corporate beef producers routinely spend from \$20 to \$90 more than each animal's value to raise cattle.²

Each year, American taxpayers dish out \$38 billion to subsidize meat, fish, eggs, and dairy.³ To put this corporate welfare package in perspective, it's nearly half the total unemployment benefits paid by all fifty US states to unemployed workers in 2012.⁴ However, as we'll see, unlike unemployment payments, subsidies don't actually benefit many Americans—nor many farmers—and they are often disbursed in illogical and unfair ways. Consider this: media mogul Ted Turner and former NBA star Scottie Pippen were among the more than one thousand non-farming New York City residents to pick up farming checks from the federal government in 2007.⁵

When it comes to the market for crops used as animal feed, which means the majority of crops grown in this country, America's enormous farm subsidy program turns the system topsy-turvy. Bizarrely, government handouts encourage farmers to grow more

of these crops even as prices decline. This is as backward as parents giving their kids extra money to make cold lemonade in the middle of winter. It just doesn't make sense. Perhaps even worse than wasting the money, the consistent result of such a subsidy policy is to put small farmers out of business and damage rural communities here and abroad. But it doesn't end there. Taxpayers also provide subsidies to encourage fishing even when it would otherwise be unprofitable. Yet with twice the number of fishing ships patrolling the seas than are necessary for the task, humans have already destroyed one-third of the ocean's fisheries and, unless we cut back, are headed for complete destruction of all currently fished species within several decades.⁶

Few Americans are aware of the realities of meatonomics—the economic system that supports our nation's supply of animal foods—yet the peculiar economic forces powering our food system influence us in ways few imagine and nudge us to behave in ways we normally wouldn't. Among its various effects, one of the most unsettling is that the system encourages us to eat much more meat and dairy than the United States Department of Agriculture (USDA) advises.

According to conventional wisdom, factors like taste, dietary beliefs, and cultural traditions drive our decisions to buy animal foods. But the reality is that price plays a huge role in our eating choices as well. The alarming result of consumers watching our pocketbooks so carefully is that producers, who work hard to keep prices artificially low, are heavily responsible for driving demand. Doubling down on their strategy, producers also bombard shoppers with misleading messages about the need to chow down on animal foods. Consequently, Americans have, to a great extent, become puppets of the animal food industry. We eat what and how much we're told to, and we exercise little informed, independent judgment. You might think you know why you choose to eat certain foods, but as we'll see, the real reasons are much more complicated.

Spend a few hours with this book, and you'll gain vital insight into how the economics of animal food production influence your spending, eating, health, and longevity. You'll also discover how the forces of meatonomics affect the well-being of the planet and its inhabitants,

including tens of billions of animals used for food, and millions of small farmers here and abroad. Learning how these forces work can help you improve your personal life and the world in so many important ways, including saving money, losing weight, boosting your health, living longer, protecting animals and the planet from abuse, and preserving rural communities in the United States and elsewhere.

Meet the Owners

The Occupy Movement knows them as the One Percent. Comedian George Carlin called them the country's Owners. They're the rich power brokers behind the scenes, the business aristocrats who own almost everything in the United States and either influence or make almost all the important decisions in the country. In the meatonomic system, the Owners enjoy a base of economic and political power practically unequaled in any other industry.

The animal food sector wields its considerable economic clout to exert enormous influence over lawmaking at both the state and federal levels. In the past several decades, animal food producers have convinced lawmakers to adopt a broad range of legislation—including some so over the top that it can only be called shocking—to protect the industry and ensure its profitability. For example, it's illegal to “defame” animal foods in thirteen states, and as Oprah Winfrey learned firsthand from a tangle with Texas beef producers, the industry does not hesitate to sue those who say unkind things about its products. Further, because undercover investigations at factory farms invariably yield graphic images of unsafe and inhumane conditions, the industry has sought—with surprising success in a number of states—to stop the flow of these shocking images by criminalizing the exposés.

Then there's the federal food bureaucracy. Meat and dairy producers have conquered the two main US agencies that oversee them—the USDA and the Food and Drug Administration (FDA)—through a process economists call “regulatory capture.” This influence makes the USDA so bipolar, it's a befuddling exercise to figure out the agency's message or mission. The thirteen-member committee that formulated

the agency's latest set of nutrition recommendations was tasked with looking out for the nation's health. But the group included nine members with ties to the food industry, casting doubt on the committee's good faith and on the reliability of its output.⁷ In one example typical of the agency's institutional confusion, a USDA brochure advises Americans to eat less cheese, while the agency simultaneously supports advertising that urges us to eat more cheese.⁸

As for the FDA, it regularly ignores scientific research and public opinion to side with industry. In a move that might have made Louis Pasteur queasy, the agency permits milk producers to dose cows with a dangerous growth hormone (a practice outlawed in Europe and sharply criticized by a US federal appellate court). It also refuses to require labeling of genetically engineered foods despite public demand for such disclosure.⁹ As the FDA moves closer to approving the sale of a new genetically modified salmon, this nondisclosure policy could soon make it impossible for consumers to distinguish between a gene-spliced fish and the real thing.

Is It Sustainable?

The animal agriculture system drives production at levels that make this sector, according to recent research by two World Bank scientists, the single greatest human cause of climate change on the planet.¹⁰ That's right, forget carbon-belching buses or power plants; animal food production now surpasses both the transportation industry and electricity generation as the greatest source of greenhouse gases. Even worse, the system fosters financial incentives that encourage the relentless destruction of land and the routine contamination of air and water. For example, antibiotics and steroids are commonly used to make farm animals grow faster—thus yielding greater profits. (Athletes, it turns out, have nothing on cattle when it comes to artificially bulking up.) The widespread use of animal drugs mean these chemicals show up not only in most of the animal foods that Americans eat but also in a majority of US waterways.¹¹

Commentators have proposed a number of alternatives to improve the sustainability of animal food production. Unfortunately, these

solutions generally fall short. For example, ecological rotation farming operations, like the well-known Polyface Farm (popularized in Michael Pollan's bestseller *The Omnivore's Dilemma*), represent one interesting approach to animal agriculture. However, a closer look at such farms shows a disappointing truth: they're both unsustainable and incapable of serving the demand of a nation like ours. Just addressing the local meat-eating supply of Southern California, where I live, would require thirty-three thousand farms the size of Polyface, a physical and logistical impossibility.¹²

As much as we might like our Dairy Queen and Burger King, the reality is, compared to plant protein, raising animal protein takes up to one hundred times more water, eleven times more fossil fuels, and five times more land. Without dramatic reform, the end game in the conflict between fixed resources and ever-increasing demand is likely to have a group of clear losers—the planet's inhabitants. According to Will Tuttle, author of *The World Peace Diet*, “until we are willing and able to make the connections between what we are eating and what was required to get it on our plate, and how it affects us to buy, serve, and eat it, we will be unable to make the connections that will allow us to live wisely and harmoniously on this earth.”¹³ Meatonomics only ratchets up the damage by artificially inflating demand and disrupting other market forces. No matter your political stripe, this should bother you. If you believe in free markets, this radical and destructive government interventionism is upsetting. If you prefer regulation, the fact that government hands your tax dollars to large corporate interests is likely aggravating. In meatonomics, there's something to annoy almost everyone.

But if we are to eat, your inner carnivore may ask, don't we *need* this food production system—despite all its quirks? Sure, we have to eat, but not like this. Americans are rational, thoughtful consumers, and we want to behave in a rational manner. But the evidence shows that artificially low prices and aggressive government messaging encourage us to consume animal foods in unnaturally high quantities. As a nation, Americans consume more meat per person than anywhere else on the planet.¹⁴ Once, we might have celebrated our

extreme consumption as evidence of good living. After all, when you hear the phrase *eat, drink, and be merry*, most people can't help but picture a few slabs of meat on the table. But today, it's one of the main reasons we have twice the obesity rate, twice the diabetes rate, and nearly three times the cancer rate as the rest of the world.¹⁵ American longevity, once among the world's highest, now ranks fiftieth. Simply put, our heavy consumption of foods high in saturated fat, cholesterol, and other substances linked primarily or uniquely to animal foods has helped make us one of the sickest developed nations on Earth.¹⁶

The Price We Pay

More than any other microeconomic system in the United States, meatonomics aggressively shifts the costs of producing its goods onto American taxpayers and consumers. The only word for these costs is *staggering*. The total expenses imposed on society—that is, production costs *not* paid by animal food producers—are at least \$414 billion.¹⁷ These costs are not reflected in the prices Americans pay at the cash register. Rather, they are exacted in other ways, like higher taxes and health insurance premiums, and decreases in the value of homes and natural resources touched by factory farms.

For every dollar in retail sales of meat, fish, eggs, or dairy, the animal food industry imposes \$1.70 of external costs on society. If these external numbers were added to the grocery-store prices of animal foods, they would nearly triple the cost of these items. A gallon of milk would jump from \$3.50 to \$9, and a store-bought, two-pound package of pork ribs would run \$32 instead of \$12.¹⁸

The American animal food industry is not alone. Most other industries distribute their profits to a relatively small group of stakeholders, and corporations commonly externalize costs in the course of generating those profits. But this industry *is* unique in the unparalleled scope of its destructive swath, the massive costs it imposes on society, and the total quantum of misery it dumps on consumers, taxpayers, workers, farmers, and animals. Consider the favorite pariah industry of many: US tobacco. Over five decades, tobacco companies were shown to have caused—and ultimately were forced to pay—\$400 billion in

health care costs. By comparison, as we'll see, the US animal food industry generates more than \$600 billion in health care costs *every two years* and pays virtually none of them.¹⁹ Further, unlike animal agriculture, the tobacco industry causes little ecological harm, and it's taxed—not subsidized.

Or take another sector we love to hate: Big Oil. Although the oil industry's environmental impact might rival that of animal agriculture, most petroleum products are heavily taxed—unlike animal products. Further, the \$10 billion in yearly federal subsidies (including tax breaks) enjoyed by the oil industry is mere pocket change compared to the \$38 billion heaped each year on the animal food industry. In the race to the absolute bottom, animal agriculture wins, hands down, as the US industry that imposes the highest economic costs on society across the board.

How Did We Get Here?

For many, this book may come as a surprise. Most of our beliefs about nutritional needs, consumption levels, and farming and lawmaking practices are based on traditions that have largely melted away—at a pace of change so slow and seductive, we're barely aware of it. As the comic strip's Calvin put it, "Day by day, nothing seems to change. But pretty soon, everything's different." Consider a few ways that the changing landscape of animal food production has both shaped the growth, and heralded the rise, of meatonomics.

For starters, forget about that bucolic *American Gothic* picture of the gentleman farmer. Industrial farming operations have largely replaced small farms, and the "pasture spring" and "little calf . . . standing by the mother" that Robert Frost saw on his family farm a century ago are lost artifacts—relics of an obsolete way of life. In the decades since 1950, American farming has undergone a major transformation, and mom-and-pop farms are mostly gone—either acquired by large corporate operations or plowed under for new housing subdivisions. For instance, between 1954 and 2007, even as demand for dairy increased by 40 percent, the number of US dairy farms plummeted from 2.9 million to 65,000.²⁰ We wouldn't know it from the peaceful,

pastoral logos of the dairies and meat packers whose products we consume (who doesn't love a smiling cow on a package?), but today, 99 percent of the farm animals raised in the United States live in steel and concrete factories with no resemblance to a traditional farm.²¹

Then there's the fact that meat and dairy keep getting cheaper. This development is driven partly by subsidies, partly by efficient methods of factory farming, and partly by the industry's practice of offloading its costs onto others. But the upshot is the inflation-adjusted retail prices of animal foods have dropped steadily in the past century. Since 1913, in inflation-adjusted dollars, eggs have gotten cheaper by 79 percent, butter by 57 percent, and bacon by 23 percent. Here's a jaw-dropping stat: the portion of our incomes that Americans spent on meat was 2.4 percent in 1990, yet despite higher consumption levels, only 1.7 percent in 2010.²² And of course, it's a basic rule of economics that declines in price lead to increases in demand.

Thus, the last century has also seen a significant increase in animal food consumption and its ugly cousin, obesity. Annual per-capita meat consumption has nearly doubled in the United States over the last century to its current level of 200 pounds per person.²³ Our meat and egg consumption levels are well above USDA recommendations, and this is one reason we're growing dangerously heavier. Two in three Americans are overweight and one in three is obese.²⁴

But it wasn't always like this. Fifty years ago, only one in eight Americans was obese.²⁵ The national obesity figure increased by an average of about one-half percentage point per year for the past five decades, moving almost in lockstep with the rise of factory farming and the decline of animal foods' retail prices. Of course, higher consumption of meat and dairy is not the only reason for our nation's health issues—we also eat more sugary and processed foods than we used to—but as we'll see, volumes of research show that animal foods are a major contributing factor.

Finally, the steady rise of meatonomics has followed a disturbing, yet rampant political change: corporate influence over lawmaking has risen dramatically in the last half century. Driven largely by the expense of television advertising, the cost to get elected to US office

has increased tenfold (in inflation-adjusted dollars) in the last fifty years.²⁶ This skyrocketing price tag has in turn dramatically boosted the amounts spent to influence lawmakers and the number of lobbyists peddling influence. (For a graphic example of how lobbying works at this level, check out the 2005 Golden Globe–nominated film *Thank You for Smoking*.) In the past three decades, as annual spending to influence Congress rose from \$100 million to more than \$3.5 billion (in inflation-adjusted dollars), lobbyists grew their ranks tenfold.²⁷

The animal food industry is just one of many special interests to capitalize on this massive change in spending and influence, but its efforts have been particularly successful. In the past few decades, the industry has convinced lawmakers to pass scores of state and federal laws that protect animal food production in a variety of ways. These include such disturbing examples as the emasculation of dozens of laws that once prohibited cruelty to farm animals and the passage of new prohibitions against food defamation, undercover investigations, food injury lawsuits, and phantom ecoterrorism.

The Purpose of This Book

For almost as long as they've been in use, factory farms have been synonymous with three kinds of problems: environmental, nutritional, and ethical. This book proposes a fourth category: economic. We'll see how factory farming offloads massive costs onto society and how its contrarian economics drive other problems like overconsumption. Low prices are certainly not the only reason people overindulge in animal products, nor can we blame economics exclusively for the many problems associated with animal food production and consumption. Clearly, a complex set of personal and social factors are at play in our food choices and in the consequences those choices have for us and the world around us. Psychology professor Melanie Joy has proposed the term *carnism* for the belief system that drives meat consumption. This entrenched system, Joy says, "is supported by every single institution in society, from medicine to education."²⁸ However, while this belief system is likely responsible for persuading Americans to consume animal foods in the first place, it is in large measure the *price*

of these goods that determines *how much* meat and dairy people buy. Thus, I seek to show that economic forces play a much greater role in our consumption choices than we've previously thought.

I also argue that while American consumption of animal foods is often perceived as demand driven—or spurred by consumer preferences and disposable income—it is actually heavily supply driven, or propelled by producer behavior. For instance, popular explanations for consumers' rising consumption of animal foods look at demand drivers like rising incomes and lifestyle changes.²⁹ But it's not that simple. The latest research shows that changes in production methods, such as the shift from traditional farming methods to low-cost industrial practices—and the resulting declines in retail prices—deserve most of the credit for the increase in consumption.³⁰ In other words, it is mainly producers, not consumers, who have spurred the massive increase in animal food consumption over the past century.

Moreover, state and federal governments provide key assistance in this demand-boosting process by laying out subsidies and protectionist policies that let producers sidestep the vast majority of their own production costs. Consumers get it from every side—the USDA tells us to eat more, industry tries to convince us substances like saturated fat are good for us, and lawmakers impose liability on those who might investigate, criticize, or sue meat or dairy producers. As we'll see, collectively, these meatonomic forces routinely impair the ability of consumers to make healthy decisions about what and how much to eat. These forces also cause systematic failure in the American market for animal foods.

Market failure is econo-speak for a market's inefficient allocation of goods and services which, if fixed, would yield better outcomes for all. In the following chapters, I present a three-part argument that illuminates in detail—and shows how to fix—the significant market failure caused by the economics of animal food production. First, I show that the federal government is at fault for fostering economic conditions that benefit no one except the animal food industry. With bureaucrats often turning a blind eye to how or what can be communicated to consumers, the industry engages in a sophisticated messaging campaign

that is often misleading or confusing—and sometimes simply false. Regulators routinely strike out when it comes to exercising control over this and other industry activity, and through misguided legislation and policymaking, lawmakers actually encourage the industrial food complex to impose its production costs on us. When this kind of governmental negligence leads to market failure, as it does with meatonomics, the phenomenon becomes government failure.

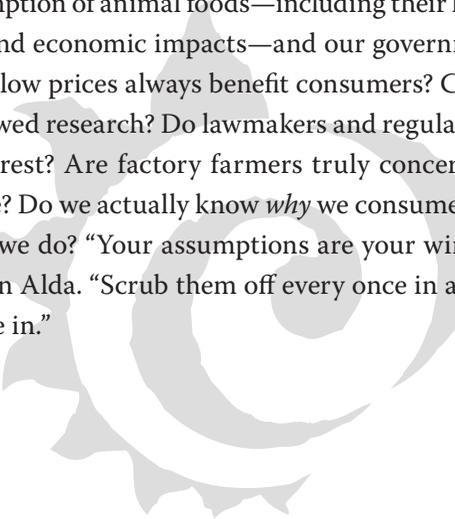
Second, I argue that because of this government failure, the micro-economic system that produces meat and dairy is characterized by heavy overconsumption, huge inefficiencies, and massive hidden costs. This broken system damages Americans' health, hurts the environment, treats animals cruelly, and causes other harms. Moreover, these problems generate significant, measurable, financial consequences. As former US Senate Minority Leader Everett Dirksen (R-IL) famously remarked, "A billion here, a billion there, pretty soon you're talking real money." \$314 billion in health-care costs. \$38 billion in subsidies.* \$37 billion in environmental costs. \$21 billion in cruelty costs. \$4 billion in fishing-related costs. Collectively, these costs would almost triple the retail prices of animal foods if they weren't offloaded instead onto consumers and taxpayers.

But the picture is not all doom and gloom. The book concludes with several suggestions to fix this broken market, restore our health, and heal the environment. On an individual level, we can each help by changing how we consume. On an institutional level, relatively simple policy changes can stimulate the economy, save 172,000 lives, eliminate \$184 billion in external costs, incentivize Americans to make healthy eating choices, and cut carbon-equivalent emissions to a level not seen since 1950. This solution is practical and realistic, and because it's coupled with an income tax credit for all Americans, it's politically feasible.

* While a subsidy is not technically a hidden, or externalized, cost, farm subsidies are included for measurement purposes because, like externalities, they impose costs on—but provide little actual benefit to—taxpayers.

“Most of our assumptions have outlived their uselessness,” said the Canadian philosopher Marshall McLuhan. We once thought the Earth was both flat and the center of the universe. A few centuries ago, we thought it wise to add lead to wine. As recently as 1929, we believed a little cocaine in our Coca-Cola was good for us.

This book asks us to challenge our assumptions about the production and consumption of animal foods—including their health effects, ethical issues, and economic impacts—and our government’s role in the process. Do low prices always benefit consumers? Can we always trust peer-reviewed research? Do lawmakers and regulators really act in our best interest? Are factory farmers truly concerned for their animals’ welfare? Do we actually know *why* we consume the foods we do at the levels we do? “Your assumptions are your windows on the world,” says Alan Alda. “Scrub them off every once in a while, or the light won’t come in.”



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INFLUENCING THE CONSUMER



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The Brave New World of Government Marketing

In his 1932 novel *Brave New World*, Aldous Huxley imagined a future in which humans exist solely to support the economy and are conditioned from birth to buy things. Government bureaucrats manipulate the sheep-like citizens with drugs and slogans to make them consume as much as possible. In Huxley's vision, 26th-century consumers learn that “ending is better than mending” and “the more stitches, the less riches”—that is, buying new things is better than fixing old ones. But for US consumers, this eerie futuristic fantasy—with government using marketing slogans and other undue influence to drive consumption—has arrived a few centuries early. This chapter explores government marketing as a feature of meatonomics and considers its consequences for consumers.

Checkoff Programs: Unseen and Unknown, But Felt Everywhere

In the Brave New World of the 21st century—where big box stores and mega markets dominate the landscape—our government uses innocuous-sounding “checkoff” programs to encourage us to buy more animal foods and other goods. The mechanism's name persists from a time when the assessments were voluntary and producers willing to opt in participated by simply checking a box. Nowadays, the programs are tax-like and mandatory, even though the benign checkoff moniker remains.

The way they work is simple: Congress slaps a small assessment (less than 1 percent of wholesale price) on certain commodities, and the collected funds are used to pay for research and marketing

programs that boost the goods' sales. So when animal food producers collect \$1 per head of cattle, \$0.40 per \$100 of pork, or \$0.15 per 100 pounds of dairy, they pass those funds on to national marketing organizations. The proceeds are allocated among state and regional industry organizations throughout the country. There aren't many Boston Tea Party–like protests when it comes to making the payments—probably because most consumers don't know about check-offs and most producers think their trade groups put the money to good use. These trade groups don't equivocate much about what they do or why they exist. The Kentucky Cattlemen's Association, for example, keeps it simple, saying its business purpose is “Promotion of the beef industry.”¹

Although few Americans have heard of checkoff programs, we've all heard or seen the catchy, feel-good slogans they've generated:

Beef. It's What's for Dinner.

Milk. It Does a Body Good.

Pork. The Other White Meat.

Written, spoken, or sung—and flashed across every medium, including print, radio, TV, and the Internet—these statements have bombarded American consumers for decades. The echo of one particularly snappy jingle that went with a ubiquitous 1990s commercial—“The Incredible, Edible Egg”—still rattles in my brain. And while that phrase and many others predate social networking, they persist because their sticky messaging fits in perfectly with today's meme-saturated, web-dominated world. Like an ink stamp, these messages imprint themselves with authority on our subconscious and become part of our belief system. What's for dinner? Without even knowing why, many think, *Beef*.

Across the board, animal food checkoff programs are remarkably effective at making us buy more than we would otherwise. According to the USDA, for each dollar of checkoff funds spent promoting animal foods, “the return on investment can range as high as \$18.”² The beef checkoff program raises sales by \$5 per checkoff dollar spent.³ The pork checkoff program drives \$14 in sales per dollar spent.⁴ While

it may not boast a memorable motto, the lamb checkoff provides an unusually huge boost, driving additional sales of \$38, or seven extra pounds of lamb, for each dollar spent on promotion.⁵ But the biggest winner might be the dairy industry, which recently boasted that over a year and half, checkoff efforts contributed to more than 7 billion *additional* pounds of milk sold.⁶ That's an *extra* forty-seven servings of dairy per person in the United States—above and beyond the hundreds of servings we would have consumed anyway during the period. Clearly, milk is up to more than just doing a body good.

All told, these programs provide funding of \$557 million yearly for animal food producers to promote their goods.⁷ This massive, government-mandated marketing budget gives the meatonomic system something few other microeconomic systems have: an exceedingly deep marketing war chest, deployed to boost sales of *all* goods from *all* producers in the program. A few other commodities, like cotton and soybeans, have checkoff programs of their own. Yet in every other industry, except for those lucky enough to have a checkoff program, individual corporations must fork out their own funds to increase sales rather than rely on government programs to prop up their numbers. With meatonomics, on the other hand, the effect of checkoff programs is that we all buy more of nearly every conceivable animal food than we would otherwise. Like a diner with an insatiable appetite, the animal food industry relishes the higher sales that result. Dairy promoters brag that since their checkoff program started in 1983, annual per capita consumption of milk “has climbed 12 percent to 620 pounds.”⁸

Some say checkoff programs have been unfairly linked to government and are actually just the tools of good old-fashioned capitalism. They argue these checkoff arrangements involve only private firms who pool advertising monies without government participation, and their mission and methods are no different from those of any private advertiser. However, the US Supreme Court decisively rejected this position in a 2005 case involving the beef checkoff. In *Johanns v. Livestock Marketing Association*, beef industry participants who disagreed with the message of the latest beef campaign claimed that being forced

to fund it violated their right of free speech.⁹ The Supreme Court disagreed, holding the message was actually *government speech* (a form of speech the government can make others support). The court said:

The message set out in the beef promotions is from beginning to end the message established by the Federal Government. . . . Congress and the Secretary [of the USDA] have set out the overarching message and some of its elements, and they have left the development of the remaining details to an entity whose members are answerable to the Secretary (and in some cases appointed by him as well).

Moreover, the record demonstrates that the Secretary exercises final approval authority over every word used in every promotional campaign. All proposed promotional messages are reviewed by [USDA] Department officials both for substance and for wording, and some proposals are rejected or rewritten by the Department. . . . Nor is the Secretary's role limited to final approval or rejection: Officials of the Department also attend and participate in the open meetings at which proposals are developed.¹⁰

This crystal-clear language from the highest court in the land leaves little doubt that the beef checkoff program, and the messages it generates, are the product of the federal government. Simple logic shows that other animal food checkoff programs, which were established by Congress in the same way and are similarly administered by the USDA, are equally the mouthpieces of the federal government. So when one of these organizations speaks—regardless of the product it's hawking—it may say it's the National Pork Board, but the background sounds you're hearing are the imposing bass tones of the US government.

In fact, the government's continued regulatory involvement is a necessary component for mandatory checkoffs to remain legally and operationally viable. If Congress simply created a checkoff program and then stepped aside to let industry run it, the First Amendment's free speech protections would likely prevent the industry majority

from bullying dissenters into participating in its message.¹¹ Under those circumstances, forget the government speech exception: it wouldn't apply and individual participants could opt out. The result would be a checkoff program that is in fact optional, not mandatory.

Why does that matter? Because such a scenario would likely undercut the force of the messaging. As research on optional checkoffs shows, economic free riders—those group members who opt out of paying for all the snazzy commercials but still enjoy their benefits—significantly lower the effectiveness of such programs.¹² Ultimately, a lack of government involvement would likely lead to the decline—or maybe the end—of checkoffs.

Checking Out Checkoffs

Few people have heard of checkoffs, and fewer still have considered their effects. Yet these programs have a number of important consequences, some good and some bad, that merit attention. First and foremost, checkoffs stimulate the economy. By boosting sales, checkoffs create jobs and drive spending. As the USDA puts it, “The fundamental goal of every checkoff program is to increase commodity demand, which increases the potential long-term economic growth of all sectors of the industry and the communities in which they operate.”¹³

With a few calculations, we can estimate the overall economic effect of checkoffs. It's a full-fledged bonanza: As table 1.1 shows, the USDA's figures for return on investment from checkoff funds suggest that checkoffs boost sales of animal foods by about \$4.6 billion.¹⁴ There's also a multiplier effect related to this sales increase: checkoffs create new jobs, and that in turn increases spending. Applying the typical multiplier used by researchers (0.77) to the sales total yields \$8.2 billion in total economic stimulus related to animal food checkoffs.¹⁵ Not bad, but what about the other side of the ledger?

For starters, animal food production generates large external costs—expenses that producers impose on society instead of paying themselves. In the book's second half, we'll see that for each \$1 of animal food sold at retail, the industry generates about \$1.70 in external costs. Applying this ratio to the \$4.6 billion sales figure reveals that

checkoffs generate roughly \$7.8 billion in external costs *not reflected* in the retail prices of the goods they promote. That’s nearly equal to the economic activity they generate. As with many of the interesting equations that meatonomics presents, the \$64,000 question is whether the trade-off is worth it.

TABLE 1.1 Effects of Checkoff Spending on Animal Food Sales (dollar amounts in millions)¹⁶

ANIMAL FOOD CHECKOFF PROGRAM	ANNUAL CHECKOFF FUNDS SPENT	RETURN ON CHECKOFF FUNDS INVESTED	EXTRA SALES FROM CHECKOFF SPENDING
Pork	\$65.4	14	\$915.6
Beef	79.8	5	399.0
Eggs	21.0	6	126.0
Lamb	2.3	38	87.4
Milk	107.8	8	862.4
Dairy	281.2	8	2,249.6
Total	\$557.5		\$4,640.0

Checkoffs, moreover, cause us to buy more animal foods than we would otherwise. Yet judging from the data, Americans already eat plenty of these foods and don’t need more. Teenagers, for example, consume 78 percent more saturated fat and 48 percent more cholesterol—both linked primarily or exclusively to animal foods—than government guidelines recommend.¹⁷ One in three US teenagers is obese or overweight, triple the rate in 1963, and a growing number have diabetes or high blood pressure—diseases directly linked to meat and dairy consumption and formerly seen only rarely before adulthood.¹⁸

Nevertheless, the USDA keeps urging these kids to eat more of the very foods that help make them fat and unhealthy. The huge milk promotion Fuel Up to Play 60, for instance, enjoys more than \$50 million yearly in government-mandated funding and reaches 36 million students in seventy thousand schools.¹⁹ And checkoff funding helped the Dairy Board team with Domino’s Pizza to offer pizzas in two thousand US schools.²⁰ Yet it’s not just kids who overindulge; as

table 2.1 in chapter 2 shows, adult Americans also routinely consume more animal foods than the USDA recommends.

Weird Science

With annual promotional funds of \$389 million, the dairy industry enjoys nearly three times the checkoff spending of all fruit and vegetable producers combined (not to mention a marketing budget that would be the envy of many a Hollywood studio).²¹ To look at it another way, dairy spends more on advertising in one week than the blueberry, mango, watermelon, and mushroom industries spend together in a year.²² Under federal law, checkoff funds are intended to be used for both promotion and research. Thus, the National Dairy Council, the largest of dairy's many checkoff-funded arms, boasts that it "partners with top universities and other research facilities across the United States to support nutrition research efforts."²³ Dairy research, funded by at least \$58 million yearly, is largely focused on finding ways to convince consumers that dairy is healthy.

Since industry-funded research might be suspect, dairy takes steps to ensure its research appears unbiased. For scientific credibility, research must be published in a respected, peer-reviewed journal. But here's the rub: the National Dairy Council ensures access to such journals, and the benevolence of their editorial boards, by donating cash to a number of nutritional organizations. These include the American Society for Nutrition (whose other corporate sponsors include Dannon and McDonald's) and the Academy of Nutrition and Dietetics (brought to you by the National Cattlemen's Beef Association).²⁴ Both organizations publish prestigious research journals.

The "best source for the most accurate, credible and timely food and nutrition information," boasts the website of the Academy of Nutrition and Dietetics. But what's left unsaid is the Academy, formerly known as the American Dietetic Association (ADA), has a particularly cozy relationship with dairy. As the world's largest organization of food and nutrition professionals, with over seventy thousand members, it's easy to see how food industry players can benefit

from access to this influential group. This begs the question, just how accurate and credible *is* the organization's nutrition advice?

In a 2007 press release discussing a major increase in the size of the National Dairy Council's funding commitment, the ADA said the sponsorship arrangement gave dairy producers "prominent access to key influencers, thought leaders and decision-makers in the food and nutrition marketplace."²⁵ The release went on to illustrate, with candor, how the relationship benefits the Dairy Council. One quid pro quo of past sponsorship apparently included the ADA's endorsement of the Dairy Council's "3-A-Day of Dairy campaign, which educates consumers and health professionals about the nutrition and health benefits of consuming three servings of fat-free or low-fat milk, cheese and yogurt a day."²⁶ The ADA release didn't disclose the extent of the Dairy Council's generosity, but judging from the size of other contributions from animal food producers to nonprofits, it's safe to assume it wasn't insignificant. The National Live Stock and Meat Board, for example, gave \$189,000 in one year to the American Heart Association.²⁷

Dairy also seeks to extend its scientific influence by installing its people on boards, committees, and editorial panels of nutritional organizations and their journals. One of these people is Gregory Miller, who serves in multiple capacities—president of the Dairy Research Institute, executive vice president of the Dairy Council, and committee chair for the American Society for Nutrition.

Miller and I spoke about dairy research. Among other things, I was curious about studies that have looked at industry influence in the scientific process. These studies find that industry-funded research is up to four times more likely to reach conclusions favorable to the sponsor than unfavorable.²⁸ In one of these studies, researchers found that "systematic bias favors products which are made by the company funding the research."²⁹

According to Miller, the dairy industry provides a sort of public service through its support of nutrition research. "With government funding continuing to shrink," Miller told me, "industry has a responsibility to help fund some of the research that needs to be done out there." In light of such apparently selfless motives, who could accuse

the dairy industry of bias? Furthermore, Miller assured me dairy research is *not* biased, twice using the Fox News slogan “fair and balanced” to drive home the point.

But what about the study that found industry-supported research is four times more likely to reach conclusions favorable to its sponsor? “That study design is somewhat flawed,” Miller told me. “I would take it with a grain of salt.”

Miller sent me a number of published articles from industry-funded research. These studies have titles like “Dairy Calcium Intake, Serum Vitamin D, and Successful Weight Loss” and, even catchier, “Drinking Flavored or Plain Milk is Positively Associated with Nutrient Intake and Is Not Associated with Adverse Effects on Weight Status in US Children and Adolescents.” For anyone interested in just how fair and balanced this research is, a look at one study is enlightening.

In 2010, researcher Patty Siri-Tarino of the Children’s Hospital Oakland Research Institute and three colleagues published an article that found consumption of saturated fat does *not* cause heart disease.³⁰ This article’s surprising conclusion runs contrary to a significant and consistent line of published research that finds exactly the opposite—that dietary saturated fat causes heart disease.³¹ Not surprisingly, the news that eating fat doesn’t lead to heart disease hit the blogs like celebrity wedding gossip. The animal food industry now trumpets the Siri-Tarino study as one of several said to debunk the “myth” that saturated fat is unhealthy.³²

Unfortunately for those of us who love fatty foods, this news doesn’t call for a celebratory pizza. The Siri-Tarino study suffers from what many research scientists consider a defect in methodology: failure to appropriately control for an important confounding factor. Siri-Tarino’s article is a meta-study—that is, it compiles and evaluates research from a number of studies to reach an empirical conclusion. The saturated fat studies analyzed in Siri-Tarino all use the cohort research model, which compares different groups to determine their incidence of disease over time. In any cohort study, confounding factors that could skew the results must be controlled. For example, because elderly people have a categorically higher incidence of heart

disease than children, comparing a high-fat eating cohort of octogenarians to a fat-free group of teenagers would be misleading—we wouldn't know if the teenagers' lower heart disease rate was related to their age or their diet.

The studies assessed by Siri-Tarino generally identified and adjusted for a number of confounding factors, such as age, gender, and lifestyle. So far, so good. But they *did not* adjust for the single most important confounding factor that any study of the health effects of fat or cholesterol in an animal food must: consumption of other animal foods. All animal foods routinely contain both saturated fat and dietary cholesterol, and surprisingly, low-fat animal foods like chicken and salmon are actually chock-full of cholesterol.³³ Accordingly, any study that seeks to assess the effect of saturated fat on health *must control for the confounding effect of dietary cholesterol*. The best way to do this is to compare a group whose members eat both saturated fat *and* cholesterol with a group whose members eat less fat and *no* cholesterol.

Because dietary cholesterol is present in animal foods but not in plant foods, a low-fat research cohort should eat only plant foods. Otherwise, low-fat eaters of animal foods can easily soak up cholesterol at levels equal to or greater than those in the high-fat cohort, and the low-fat diet will show little or no health difference when compared to the high-fat diet. Significantly, the research analyzed by the Siri-Tarino meta-study did not control for this cholesterol factor. In other words, there was no meaningful baseline for comparison since members of all cohorts consumed animal foods, and these all contained dietary cholesterol. As a result, it is little wonder the study found that low-fat diets and high-fat diets present comparable risks of heart disease. When you consider that chicken and salmon contain the same amount of cholesterol as ground beef (but less fat), it's not hard to see why Siri-Tarino's research found what it did.³⁴

Many in the scientific community question such research methodology. One critic is T. Colin Campbell, professor emeritus at Cornell University, lead researcher in numerous nutritional studies, and coauthor of *The China Study*. Campbell notes the practice of replacing

high-fat animal foods with low-fat animal foods, which is common in the studies analyzed by Siri-Tarino: “If one kind of animal-based food is substituted for another, then the adverse health effects of both foods, when compared to plant-based foods, are easily missed.”³⁵ Discussing the Nurses’ Health Study, a well-known study analyzed in Siri-Tarino, and which employed methodology typical of Siri-Tarino’s other subject studies, Campbell writes:

It is the premier example of how reductionism in science can create massive amounts of confusion and misinformation, even when the scientists involved are honest, well-intentioned and positioned at the top institutions in the world. Hardly any study has done more damage to the nutritional landscape than the Nurses’ Health Study, and it serves as a warning for the rest of science for what not to do.³⁶

It may be irrelevant that the National Dairy Council helped fund the Siri-Tarino study by paying two of the study’s four authors, including lead author Siri-Tarino.³⁷ That’s because the meta-study merely compiled results from dozens of other studies—many of which were not industry funded. Then again, even in such a meta-study, the criteria used for study selection can be highly subjective.

Further, the Siri-Tarino article appeared in *The American Journal of Clinical Nutrition*, published by the American Society for Nutrition. The journal frequently publishes research which concludes that animal foods are unhealthy, and many of those articles are cited in this book. On the other hand, as we’ve seen, the journal’s overseeing organization is sponsored by the Dairy Council as well as others in the animal food industry and features an industry executive in one of its highest committee posts.

Regardless of whether Siri-Tarino is objective science or industry whitewashing, the importance of such research to animal food producers is clear. Research like Siri-Tarino can be highly effective at boosting product sales—in fact, sometimes even more effective than buying billboard space and running TV ads. One group found that \$1 spent on pork research yielded a \$25 return, while \$1 spent on promotion

returned only \$8.³⁸ Perhaps Miller's claim of industry generosity is overstated. Perhaps checkoff programs in fact spend millions on research not to help the public but merely to find new ways to increase sales or reduce costs. One might well conclude that the prudent approach to such industry-funded research is to treat it as you would a carton of expired milk—with caution.

The Dubious Value of Checkoffs

Do we need checkoffs? They stimulate the economy, but in the case of animal foods, they generate almost \$2 in external costs for every \$1 of stimulus. Some promote indisputably healthy foods like blueberries and mangoes; others encourage those who already eat too much animal foods to eat more. Perhaps the fundamental issue surrounding checkoffs is the one Huxley raised: whether it's appropriate for government to urge its citizens to buy things they don't really need.

Take animal foods off the table for a moment. In some ways, the question of government influence is as relevant for peanuts and popcorn, both of which have checkoff programs, as it is for meat, eggs, and dairy. Is it right for the state to use cute corporate mascots like Poppy and Captain Kernel to cajole us to buy more popcorn at the movies? Recall that this is not conventional advertising, in which one private firm tries to convince us its products are better than another's. This is government-sponsored, across-the-board demand boosting—designed to sell more of everything in the category. As the enabling legislation explains, checkoffs are meant to “increase the overall demand” for the goods they cover.³⁹

These are the first few notes of a motif that repeats throughout this book like a songbird's call. As H. L. Mencken quipped, “When they say it's not about the money, it's about the money.” The federal government doesn't promote food to boost consumers' health. After all, many of the foods we're urged to buy are bad for us—particularly at the levels at which we're told to consume them. So why do our elected and appointed representatives tell us to eat more? Because industry demands it as a way to increase sales, and as we'll see, industry usually gets what it wants.

Not all checkoffs are created equal. Except for those covering animal foods, most checkoffs generate relatively low external costs. For checkoffs that promote low-impact goods like mangoes, blueberries, and mushrooms, perhaps the value of economic stimulus outweighs the creepiness associated with government influence. Or perhaps not. But at any rate, animal food checkoffs are in a herd of their own. They encourage Americans to consume meat, eggs, and dairy at much higher levels than normal. They drive disproportionately high external costs. The worst part, as we'll see in chapter 6, is that checkoffs help to sicken an already-ill nation. Maybe the question we should ask ourselves about these programs is: Got Milked?

Food for Thought

- Although Americans already consume much more animal foods than the USDA recommends, that agency continues to oversee checkoff programs that spend \$557 million yearly urging us to buy and eat even more of these foods.
- Checkoffs are remarkably effective. By funding aggressive marketing and research programs that convince consumers that animal foods are a healthy and necessary part of our daily diet, checkoffs boost sales by as much as \$38 for each checkoff dollar spent.
- Without government involvement, checkoffs would be dramatically less effective and perhaps even nonexistent. If the USDA disengaged from checkoffs that promote animal foods, it would significantly reduce the nation's routine overconsumption of these foods.

ENDNOTES

Author's Note

- 1 Shunryu Suzuki, *Zen Mind, Beginner's Mind: Informal Talks on Zen Meditation and Practice* (New York: Weatherhill, 1989).

Introduction

1. Allan Schinkel, "Pork Production Costs: Farrow to Finish Production," *Animal Sciences* 443: Swine Management (2000), accessed December 1, 2011, <http://www.ansc.purdue.edu>.
2. The loss per animal of \$20 to \$90 is for larger and more efficient producers—that is, those raising 100 or more head of cattle. Smaller producers' losses are even higher, ranging from \$184 to \$305 per animal. Sara D. Short, "Characteristics and Production Costs of U.S. Cow-Calf Operations," *USDA Statistical Bulletin* 17, no. 947-3 (2001), accessed December 1, 2011, <http://www.ers.usda.gov>.
3. See chapter 5.
4. Christopher Chantrill, "Government Spending Details," US Government Spending (2012), accessed July 10, 2012, <http://www.usgovernmentspending.com>.
5. The 2013 farm bill (not yet passed as of this writing) seeks to discontinue such direct payments. Michael Grunwald, "Why Our Farm Policy is Failing," *Time Magazine* (November 2, 2007).
6. Boris Worm et al., "Impacts of Biodiversity Loss on Ocean Ecosystem Services," *Science* 314, no. 5800 (2006): 787-90.
7. Jeff Herman, "Saving U.S. Dietary Advice from Conflicts of Interest," *Food & Drug Law Journal* 65 (2010): 285-326.
8. See chapter 4.
9. See chapter 4.
10. Robert Goodland and Jeff Anhang, "Livestock and Climate Change: What if the Key Actors in Climate Change Are . . . Cows, Pigs and Chickens?" *World Watch* (November/December 2009): 10-19, accessed October 25, 2011, <http://www.worldwatch.org>.
11. Herbert T. Buxton and Dana W. Kolpin, "Fact Sheet FS-027-02, Pharmaceuticals, Hormones, and Other Organic Wastewater Contaminants in U.S. Streams," US Geological Survey (2002), accessed October 24, 2011, <http://toxics.usgs.gov>.

12. See chapter 7.
13. Will Tuttle, *The World Peace Diet: Eating for Spiritual Health and Social Harmony* (New York: Lantern Books, 2005), xv.
14. Excluding the tiny state of Luxembourg, population 500,000, which apparently eats more meat per capita than we do but is too small to be statistically significant.
15. US Centers for Disease Control and Prevention, "U.S. Obesity Trends," accessed December 27, 2011, <http://www.cdc.gov>; World Cancer Research Fund International, "Data Comparing More and Less Developed Countries," accessed December 27, 2011, <http://www.wcrf.org>; American Cancer Society, "Cancer Facts and Figures 2011," accessed December 27, 2011, <http://www.cancer.org>; National Cancer Institute, "Surveillance Epidemiology and End Results," accessed December 27, 2011, <http://seer.cancer.gov>; World Diabetes Foundation, "Diabetes Facts," accessed December 27, 2011, <http://www.worlddiabetesfoundation.org>; American Diabetes Association, "Diabetes Statistics," accessed December 27, 2011, <http://www.diabetes.org>.
16. World Health Organization, "The World Health Report" (2000), accessed February 29, 2012, <http://www.who.int>.
17. See Appendix B.
18. See chapter 5.
19. See chapter 6.
20. Joe L. Outlaw et al., "Structure of the U.S. Dairy Farm Sector," *Dairy Markets and Policy: Issues and Options* (March 1996), accessed September 19, 2012, <http://aede.osu.edu>; US Department of Agriculture, "Overview of the United States Dairy Industry" (2010), accessed September 19, 2012, <http://usda.mannlib.cornell.edu>.
21. Farm Forward, "Factory Farming," accessed October 25, 2012, <http://www.farmforward.com>.
22. USDA Economic Research Service, "USDA Long-term Projection" (2007), accessed November 10, 2011, <http://www.ers.usda.gov>.
23. US Department of Agriculture, "Red Meat, Poultry, and Fish (Boneless Weight): Per Capita Availability" (2012), accessed September 19, 2012, <http://www.ers.usda.gov>.
24. National Center for Health Statistics, "Prevalence of Overweight, Obesity and Extreme Obesity Among Adults: United States, Trends 1976–80 through 2005–2006," Health E-Stats (December 2008).
25. Ibid.
26. Stephen Ansolabehere, John de Figueiredo, and James M. Snyder Jr., "Why Is There So Little Money in U.S. Politics?" *Journal of Economic Perspectives* 17, no. 1 (2003): 105–130; Center for Responsive Politics, "Money Wins Presidency and 9 of 10 Congressional Races in Priciest U.S. Election Ever" (2008), accessed July 10, 2012, <http://www.opensecrets.org>.
27. US Senate Office of Public Records, "Lobbying Disclosure Act Databases," accessed May 5, 2012, <http://www.senate.gov>.

28. Melanie Joy, *Why We Love Dogs, Eat Pigs, and Wear Cows: An Introduction to Carnism* (San Francisco: Conari Press, 2010).
29. Henning Steinfeld, "The Livestock Revolution—A Global Veterinary Mission," *Veterinary Parasitology* 125, nos. 1–2 (2004): 1–4.
30. Marta G. Rivera-Ferre, "Supply vs. Demand of Agri-Industrial Meat and Fish Products: A Chicken and Egg Paradigm?" *International Journal of the Society of Agriculture & Food* 16, no. 2 (2009): 90–105.

Chapter 1

1. Kentucky Cattlemen's Association, "US Federal Income Tax Return," 2009, accessed April 25, 2012, <http://www.guidestar.org>.
2. David Shipman, "Industry Insight: Checkoff Programs Empower Business," *USDA Blog* (2011), accessed December 31, 2011, <http://blogs.usda.gov>.
3. USDA Agricultural Marketing Service, "Benefits of Research & Promotion Boards (Checkoffs)" (2011), accessed October 27, 2012, <http://www.ams.usda.gov>.
4. Ibid.
5. Ibid.
6. Dairy Management, Inc., "Dairy Checkoff Highlights" (2011), accessed January 3, 2012, <http://www.dairycheckoff.com>.
7. Dairy figure includes both "dairy products" and "fluid milk." Geoffrey S. Becker, "Federal Farm Promotion ('Check-Off') Programs," Congressional Research Service Report for Congress (2008), accessed November 5, 2011, <http://www.nationalaglawcenter.org>.
8. Ibid.
9. *Johanns v. Livestock Mktg. Ass'n* (2005) 544 U.S. 550.
10. Ibid., 560–61.
11. In 2001, the US Supreme Court refused to compel dissenting mushroom farmers to support the majority message of the mushroom checkoff program. The court held the mushroom checkoff violated the First Amendment because it merely imposed marketing requirements with little other regulation and hence was "not part of a comprehensive statutory agricultural marketing program." *United States v. United Foods, Inc.* (2001) 533 U.S. 405.
12. Chanjin Chung and Emilio Tostao, "Will the Voluntary Checkoff Program Be the Answer? An Analysis of Optimal Advertising and Free-Rider Problem in the U.S. Beef Industry," Southern Agricultural Economics Association (2004), accessed May 3, 2012, <http://ageconsearch.umn.edu>.
13. USDA Agricultural Marketing Service, "Benefits of Research & Promotion Boards (Checkoffs)" (2011), accessed January 26, 2012, <http://www.ams.usda.gov>.
14. Ibid., 5; Becker, "Federal Farm Promotion ('Check-Off') Programs."
15. Researchers use 0.77 as a typical multiplier to measure the effect on farm communities of an increase in jobs or income. Curtis Braschler et al.,

- “Economic Base Multipliers and Community Growth,” University of Missouri Extension (1993), accessed January 26, 2012, <http://extension.missouri.edu>.
16. The dairy category, for which no data are given, is assumed to have the same return on invested funds as fluid milk. USDA Agricultural Marketing Service, “Benefits of Research & Promotion Boards (Checkoffs)” (2011); Geoffrey S. Becker, “Federal Farm Promotion (“Check-Off”) Programs.
 17. Because the United States does not publish child-related cholesterol guidelines, the EFSA guidelines are used for this purpose. USDA Agricultural Research Service, “Nutrient Intakes from Food: Mean Amounts Consumed per Individual, One Day, 2005–2006” (2008), accessed January 26, 2012, <http://www.ars.usda.gov>; US Food and Drug Administration, “Calculate the Percent Daily Value for the Appropriate Nutrients,” accessed January 26, 2012, <http://www.fda.gov>; European Food Safety Authority, “Scientific Opinion on Dietary Reference Values for Fats, Including Saturated Fatty Acids, Polyunsaturated Fatty Acids, Monounsaturated Fatty Acids, Trans Fatty Acids, and Cholesterol,” *EFSA Journal* 8, no. 3 (2000): 30, accessed January 26, 2012, <http://www.efsa.europa.eu>.
 18. American Heart Association, “Overweight in Children,” accessed January 26, 2012, <http://www.heart.org>.
 19. Dairy Management, “Dairy Checkoff Highlights.”
 20. US Department of Agriculture, “Benefits of Research & Promotion Boards.”
 21. Ibid.
 22. Ibid.
 23. National Dairy Council, “Research,” *The Dairy Connection*, accessed September 20, 2011, at <http://www.nationaldairycouncil.org>.
 24. According to the ASN website, sponsorship provides a corporation with “access to more than 12,000 scientists and practitioners.” American Society for Nutrition, “ASN Sustaining Members,” accessed September 20, 2011, at <http://www.nutrition.org>; American Dietetic Association, “2010 Annual Report,” accessed December 14, 2011, www.eatright.org.
 25. American Dietetic Association, “American Dietetic Association Welcomes National Dairy Council as an ADA Partner in the Association’s New Corporate Relations Sponsorship Program,” Press Release (March 7, 2007), accessed September 20, 2011, <http://www.eatright.org>.
 26. Ibid.
 27. Center for Science in the Public Interest, “Non-Profit Organizations Receiving Corporate Funding: American Heart Association,” *Integrity in Science: A CSPI Project* (2006), accessed September 20, 2011, at <http://www.cspinet.org>.
 28. Joel Lexchin et al., “Pharmaceutical Industry Sponsorship and Research Outcome and Quality: Systematic Review,” *British Medical Journal* 326 (2003): 1167; Anastasia L. Misakian and Lisa A. Bero, “Publication Bias and Research

- on Passive Smoking,” *Journal of the American Medical Association* 280, no. 3 (1998): 303–4.
29. Lexchin et al., “Pharmaceutical Industry Sponsorship,” abstract.
 30. Patty W. Siri-Tarino et al., “Meta-Analysis of Prospective Cohort Studies Evaluating the Association of Saturated Fat with Cardiovascular Disease,” *American Journal of Clinical Nutrition* 91, no. 3 (2010): 535–46.
 31. *See, for example*, Rashmi Sinha et al., “Meat Intake and Mortality: A Prospective Study of Over Half a Million People,” *Archives of Internal Medicine*, 169, no. 6 (2009): 562–71; Teresa T. Fung et al., “Prospective Study of Major Dietary Patterns and Stroke Risk in Women,” *Stroke* 35 (2004): 2014–19; A. R. P. Walker, “Diet in the Prevention of Cancer: What Are the Chances of Avoidance?” *The Journal of the Royal Society for the Promotion of Health* 116, no. 6 (1996): 360–66; Romaina Iqbal, Sonia Anand, and Stephanie Ounpuu, “Dietary Patterns and the Risk of Acute Myocardial Infarction in 52 Countries: Results of the INTERHEART Study,” *Circulation* 118, no. 19 (2008): 1929–37.
 32. *See, for example*, American Meat Institute, “Myth: Americans Eat Too Much Meat and Its Saturated Fat Content Leads to Heart Disease,” accessed October 4, 2011, <http://www.meatmythcrushers.com>.
 33. *See* chapter 6, table 6.1.
 34. *Ibid.*
 35. T. Colin Campbell and Thomas M. Campbell, *The China Study* (Dallas: Ben-Bella Books, 2004), Kindle edition.
 36. *Ibid.*
 37. Siri-Tarino et al., “Association of Saturated Fat with Cardiovascular Disease,” 535, note 4.
 38. Michael Wohlgenant et al., “Returns to Pork Producers from Marketing and Production Research,” The Research Committee on Commodity Promotion (2008), accessed January 4, 2012, <http://commodity.dyson.cornell.edu>.
 39. Commodity Promotion and Evaluation, 7 U.S.C. § 7401(b)(7).

Chapter 2

1. Chris Welch, “Inaccurate ‘Swine’ Flu Label Hurts Industry, Pork Producers Say,” *CNN Health* (April 30, 2009), accessed April 19, 2012, <http://articles.cnn.com>.
2. Thomas H. Maugh II, “Swine Flu Danger Appears to Be Ebbing,” *Los Angeles Times* (March 19, 2010).
3. Caitlin Taylor, “Obama Administration: Out with the ‘Swine,’ In with the ‘H1N1 Virus,’” *ABC News Political Punch* (April 29, 2009), accessed September 15, 2011, <http://abcnews.go.com>.
4. *Ibid.*
5. Gavin J. D. Smith et al., “Origins and Evolutionary Genomics of the 2009 Swine-Origin H1N1 Influenza A Epidemic,” *Nature* 459 (2009): 1122–25.