1 Introduction

It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their self interest.

—Adam Smith, *The Wealth of Nations* (1776)

The first recorded brewery in the American colonies was built in New Amsterdam in 1612. Brewing as we know it in the United States today emerged in the middle of the nineteenth century when a few German immigrants began making German-style lager beer instead of English-style ales, porters, and stouts. American consumers took to the lighter lagers such as those brewed by Anheuser-Busch, Coors, Miller, Pabst, and Schlitz, and by the late 1800s these firms had gained a competitive advantage.[1]

In the period 1880–1919, however, some states and some counties passed laws prohibiting the sale of alcoholic beverages. In 1914, Congress passed the Webb-Kenyon Act, which made it illegal to mail or ship alcoholic beverages into any state that banned alcohol consumption. The Eighteenth Amendment to the Constitution, effective in 1920, outlawed production, transportation, and sale of alcoholic beverages in the United States. The amendment put 1,568 firms out of the beer-making business.

Some brewers stayed in business by making soft drinks, malt syrup, and dairy products, but those that closed their doors for good suffered a dramatic loss in wealth. For example, the William J. Lemp Brewing Company of St. Louis, valued at $7 million before Prohibition, was sold to a shoe company for less than 10 percent of its former value. The Harvard Brewery of Lowell, Massachusetts, once valued at $4 million, was sold for only $275,000 (*Modern Brewery Age*, September–October 1983).

Alcohol consumption did not cease. Many people violated the law by making beer, wine, and distilled spirits at home or by visiting illegal bars called "speakeasies." According to Glover (2001: 22), New York had about 15,000 bars before Prohibition and an estimated 32,000 speakeasies during Prohibition. In the Chicago area, where an estimated 30 illegal breweries were in operation, Prohibition pushed the price of a 31-gallon barrel of beer from $10 to $55–$60 (*Chicago Tribune Magazine*, April 24, 1977). One study found that gross profits soared by more than 1,000 percent, but much of the illegal gain was spent on bribes to ensure that government officials ignored the illegal activities (Ronnenberg 1998). According to Miron and Zwiebel (1991), Prohibition caused the consumption of alcoholic beverages to decline by only 30–50 percent in the later years of the law, a decline that resulted more from higher prices than from Prohibition itself.

After concerns arose that Prohibition was ineffective, encouraged crime, and led to a general disregard for the law, it was ended in 1933 with the ratification of the Twenty-First Amendment. Breweries that had survived by pursuing other business activities quickly returned to brewing. The number of brewers of lager grew to about 700 by 1938. It has declined dramatically since then. From 1947 to 2001, for example, the number of traditional brewers of lager fell from 421 to 24 and the market share of the four largest brewers of domestically produced beer rose from 17 to 94 percent.

Some brewers that had been among the mightiest exited the industry. Of the top ten brewers in 1947, only two survive today: Anheuser-Busch and Pabst. Although Pabst is currently the fourth-largest firm, it is no longer a true brewer; all its beer is produced under contract by Miller. These post-Prohibition brewers specialize in large-scale production of lager beer, such as Budweiser, Miller Genuine Draft, and Coors Light. To distinguish them from import and smaller domestic micro-brewers, they are now called "traditional," "macro," or "mass-producing" brewers of "regular domestic beer."

While the mass producers were exiting the industry in droves in the second half of the twentieth century, several entrepreneurs began "crafting" beer on a small scale. Because of their size, the new enterprises were called "boutique" or "micro" breweries. In contrast to the traditional brewers, the microbreweries returned to the brewing practices of the past by making ales, porters, stouts, and darker lagers. The success of the smaller brewers has been as dramatic as the decline of the larger ones. From 1979 to 2001, the new market segment grew from two firms to more than 1,400.

The lone constant in the post-World War II brewing industry has been the continued success of Anheuser-Busch. From 1950 to 1956, Anheuser-Busch traded the top position back and forth with Schlitz. Since then, Anheuser-Busch has been the largest U.S. brewing company. Between 1950 and 2001, its share of domestic production rose from 5.83 percent to nearly 55 percent. Today Anheuser-Busch is the largest brewer in the world, and its Budweiser brand name is as synonymous with beer as Coke is with cola.

An important goal of this book is to document the changes that have occurred in the U.S. brewing industry, primarily during the period 1950–2000, and to explain why these changes have occurred. Previous studies are summarized, historical and current events are described, and both firm data and industry data are used to analyze how outside forces and the behavior of firms have affected the industry.

The approach of studying a single industry and its individual firms borrows from three traditions. The first involves a case study of the structure, conduct, and performance of a single oligopolistic industry (Scherer 1970). This descriptive approach focuses on the industry as a whole, and generally ignores the behavior of individual firms. The second is the new industrial organization approach, which uses game theory to predict the behavior of rational firms and their impact on competition and social welfare in imperfectly competitive markets. The third approach involves a descriptive and empirical analysis of the behavior and performance of the important firms within an industry. According to Scherer (1980: 291) and Spulber (as quoted in Ghemawat 1997: x), a study of individual firms can guide economic theory, provide insights into firms strategies, and make it possible to prescribe optimal management strategies that fit specific market settings.

In the end, all three traditions rely on the study of a single industry, and insights from each approach appear throughout the book. This blend of approaches should lead to a better understanding of the industry and the behavior of individual firms.

1.1 The Art of Brewing and the Different Styles of Beer

Archeological evidence indicates that beer is as old as civilization and may predate the invention of bread.[2] Scholars have traced the origins of brewing back more than 6,000 years and have established that ancient Assyrians, Babylonians, Chinese, Egyptians, Greeks, Romans, and Teutons all made beer. Evidence of the oldest brewery was recently discovered in the ruins of a 5,500-year-old Syrian city (*Modern Brewery Age*, March 26, 2001: 12). The building housed a bakery and a brewery with ovens for charring grain and large vats for fermenting. Several examples of ancient beer recipes indicate that these brews tasted quite different from the beer of today. For example, according to an article published in the *Cambridge Architectural Journal* (Samuel 1996), ancient Egyptians used emmer (a type of wheat) and malted barley to produce a fruity, sweet brew.

Today beer is made from four main ingredients: water, hops, yeast, and cereal grains. Malted barley, corn, rice, and wheat are commonly used grains, and fruits, herbs, and other spices are sometimes added as flavor enhancers. Beer is brewed by heating a mixture of grains and water to convert the starches in the grains to sugars and carbohydrates. The grains are then removed, and the remaining mixture, called wort, is boiled with hops and other flavorings. The wort is cooled, and yeast is added to start fermentation, a process that changes sugar into alcohol and carbon dioxide. Beer is then aged and filtered before being pasteurized (or micro-filtered) and packaged for consumption.

Beer has been packaged in many different vessels. Early containers included clay pots and blackjacks (leather bags coated on the inside with black tar to preserve freshness). In modern times, the standard measure of volume in the U.S. brewing industry is an American barrel, which contains 31 U.S. gallons (117.34 liters). Before Prohibition, beer was shipped to taverns in wooden barrels that were coated with tar to prevent contact with wood and the absorption of a woody flavor. Since Prohibition, the largest containers are the half-barrel (15.5 gallons) and the keg (usually 8 gallons or less). Still the industry continues to record sales in terms of 31-gallon barrels, a practice that is followed throughout this book. Since the 1950s, half-barrels and kegs have been made from stainless steel or aluminum. In 2000, 51 percent of the beer consumed in the United States was packaged in cans, 40 percent in bottles, and 9 percent in half-barrels or kegs (*Brewers Almanac* 2001).[3]

Brewers can alter a beer's flavor and other characteristics in a number of ways. Alcohol content can be increased by lengthening the fermentation time and by adding sugar. Fermentation at the bottom of the vessel produces a milder taste and less alcohol than fermentation at the top. Much of beer's flavor derives from malt (dried barley roasted in a kiln). As with coffee, roasting at a higher temperature produces malt that is darker and has a richer flavor. At one pole of the malt spectrum is "pale malt," which is used in lighter lagers. At the other is "black malt," which is roasted just short of burning. Substituting corn or rice for some of the malt produces a very dry and light-colored beer. Hops help preserve freshness and add bitterness to counter the sweetness produced by the grains. Water quality and mineral content are important to producing good beer, and some brewers advertise that they use water from "pure" or "crystal-clear" springs.[4]

Today, beer styles range from pale and watery to dark and hearty (table 1.1).[5] There are three general styles of beer: ale, bottom-fermented beer, and other styles. Ales are beers produced with top-fermenting yeast. Fermentation takes place at relatively high temperatures (about 55–70° Fahrenheit) and takes about 5–7 days, yielding a beer with a higher alcohol content than a lager has. Ales tend to be dark and taste fruity and sweet. Bottom-fermented beer originated in Germany in 1836 and was first produced in the United States by John Wagner of Philadelphia in 1840. Bottom fermentation occurs at low temperatures (33–60°F) and requires 6–10 days. Because the process of making this style of beer involved longer storage time, it came to be called "lager," which means "storehouse" in German. Lager beer is noted for its mild flavor and light color.

While today's domestic microbreweries and import suppliers produce a variety of all-malt lagers, ales, porters, and stouts, the traditional mass-producing brewers focus on the production of a light lager style beer, called "regular domestic beer" or "lager." This encompasses traditional or regular lager, light beer, low-alcohol beer, malt liquor, dry beer, and ice beer (table 1.2). Regular lager is marketed at three price points: "popular-priced," "premium," and "super-premium." Malt liquor, dry beer, and ice beer are similar to regular lager but have a higher alcohol content. Light beer is lower in calories. Low-alcohol beer contains half the alcohol of regular beer.[6]

A number of factors contribute to the production and distribution of quality beer. Quality at the production stage requires superior ingredients, sterile brewing conditions, adequate aging, and consistent brewing practices. Inadequate aging, for example, produces "green" or immature beer that has an unpleasant flavor and aroma (Rhodes 1995; Goldammer 1999). Beer's quality is also affected by handling and

Table 1.1
The major beer styles.

Top-Fermented

Ales come in many styles. Classic examples include pale ale, which is amber in color and may be mild to quite bitter; brown ale, which is lightly hopped, sweet, and full-bodied; Scottish ale, which is dark in color and has a sweet, malty flavor; and bitter ale, which is highly hopped and has a very bitter taste. Alcohol content[a] varies by brand but normally ranges from 3.1% to 7.5%.

Barley wine is a full-bodied ale that requires a long aging period and has a very high alcohol content (7–15%)

Porters are dark brown, full-bodied, lightly hopped ales. The dark color results from a larger proportion of black malt. (Alcohol content: 4.3–6.3%.)

Stout is a stronger and more bitter porter brewed with more hops and black malt. (Alcohol content: 4–10%.)

Bottom-Fermented

A *bock* is traditionally a strong, dark, sweet, full-bodied beer. (Alcohol content: 5.9–13%.)

Lagers come in many styles. The term refers to any bottom-fermented light amber beer. Brands made with 100% malt have a golden color. Corn or rice adjuncts are added to produce most of the pale and light lagers found in the U.S. today. (Alcohol content: 3.9–5.4%.)

A *pilsner* (or *pilsener*) is a pale lager beer with a dry, crisp, highly hopped flavor. The style originated in the Czech town of Pilsen. The terms *lager* and *pilsner* are used interchangeably in most of the world today.

Others

Cream ale (a style developed in the U.S.) is light in color, highly carbonated, and often made by blending ale with lager. (Alcohol content: 4.8–5.5%.)

Steam beer is made with bottom-fermenting yeast (like a lager) but at higher temperatures (like an ale). This style originated in California in the Gold Rush days, when ice was very expensive. The name is now a registered trademark of the Anchor Steam Brewing Company of San Francisco. Anchor Steam is an all-malt beer with a creamy and mild hop flavor. (Alcohol content: 5.7%.)

Wheat beers are made with malted wheat as well as other grains. Two German styles, *Berliner Weisse* and *Weizenbier*, are top-fermented and have a hoppy and malty taste. *Hefeweizen* is a bottom-fermented wheat beer. (Alcohol content: 4.5–5.6%.)

a. Because alcohol content varies by brand, a range of values is provided for each style. The numbers in parentheses indicate the alcohol content by volume for various brands within each type. Alcohol content can be measured by weight or volume. Alcohol content of 5% by volume is equivalent to 3.98% alcohol by weight. Throughout this book, alcohol content is expressed by volume. See appendix C for further details.

Table 1.2
Major styles made by mass-producing brewers, listed in order of introduction into U.S. market. Numbers in parentheses: alcohol content by volume, calories per 12-ounce container.

Popular-priced lager A mild and pale lager that is usually lightly hopped and highly carbonated. Adjuncts can account for up to 65% of all grains. Examples: Busch (4.72% alcohol, 153 calories), Keystone (4.74%, 121), Milwaukee's Best (4.34%, 133), Old Milwaukee (4.53%, 145).

Premium lager A premium-priced, mild, pale lager. Colors range from very pale to gold. A premium lager has a slight malt flavor and is low in bitterness. These beers are brewed with 25–30% adjuncts. More rice than corn adjuncts are used to produce a "crisp" taste. Examples: Budweiser (4.65%, 142), Coors (4.55%, 137), Miller Genuine Draft (4.67%, 147).

Super-premium lager A mild golden-colored beer, normally with a higher hop and malt content than premium beer. Examples: Michelob (4.80%, 152), Killian's Red (5.00%, 161), Rolling Rock (4.64%, 142).

Malt liquor This style has "no legal or accepted definition" (Robertson 1984, 35; Apps 1992, 55). Its distinguishing feature is that it normally has about 20% more alcohol than premium lager. Because malt beverages with an alcohol content in excess of 5% cannot be called beer in some states, they are termed malt liquor. Examples: King Cobra (5.90%, 180), Magnum (5.92%, 160), Olde English 800 (5.96%, 167).

Light beer An extremely pale lager with fewer calories, a milder flavor, and a more watery body than premium lager. The usual adjunct is corn (50–65% of total grain). Examples: Bud Light (4.16%, 114), Coors Light (4.36%, 107), Miller Lite (4.18%, 96).

Low-alcohol beer A beer with half the alcohol of premium lager. Introduced in the mid 1980s, it is no longer produced by the major U.S. brewers.

Dry beer A highly carbonated malt beverage in which more of the sugars are fermented into alcohol, leaving little taste. Dry beer has about 10% more alcohol than premium lager. After initial success in the early 1990s, little dry beer is produced today.

Ice beer A beer made by freezing lager and then removing the ice crystals to produce a beer that is more concentrated and has about 10–20% more alcohol than premium lager. Examples: Bud Ice (5.5%, 148), Icehouse (5.5%, 149), Milwaukee's Best Ice (5.5%, 132).

distribution. Unlike wine, beer is a perishable product that begins to deteriorate once it is packaged. Shelf life is longer for beer that is refrigerated, pasteurized, and rich in hops, malt, and alcohol. Beer experts recommend that unpasteurized beer in kegs be consumed within 6 weeks. When pasteurized in cans or bottles, regular domestic beer should be consumed within 3 months, all-malt lager within 4 months, ale within 6 months, and double bock within 8 months. Very heavy barley wine can be stored for several years without spoiling. According to Elizabeth Alt, director of the U.S. Brewing Academy, regular lager can deteriorate significantly in a month if exposed to sunlight or temperature variation (*New York Times*, May 12, 1982). As packaged beer becomes stale, it takes on a cardboard-like flavor. Exposure to sunlight can cause beer to have a skunk-like odor. Brewing errors can also cause beer to have a medicinal or metallic flavor (Klein 1995: 31–32).[7]

Domestic brewers normally produce quality beer that reaches consumers while fresh. Although individual consumers have strong opinions about which brands are best, it is difficult to identify real quality differences among different brands of the mass-producing brewers. The palates of most consumers are not sufficiently sharp to distinguish subtle differences between brands within a style. Another problem is that most differences are horizontal rather than vertical (Tirole 1988). A product characteristic is vertical when all consumers agree on its ranking. A good example is freshness, since all consumers prefer beer that is fresh, *ceteris paribus* (all other things being equal). A characteristic is horizontal if the optimal choice depends on the individual consumer. For example, those who prefer a robust flavor will like a porter or a stout, while those who prefer something milder will choose a lighter beer.[8] Although beer rankings abound, they generally are influenced by the reviewers' preferences for horizontal characteristics, as there is little consistency among rankings.[9]

1.2 U.S. Beer Production and Consumption

With the exception of the Prohibition era, total U.S. beer consumption grew between 1863 and 2000.[10] Figure 1.1 reveals that beer production and consumption rose steadily from 1863 until the prohibition movement and then again from 1960 to 1980. The numbers are undoubtedly biased downward in the nineteenth century, however, as home brewing was more common at that time. Production figures for the Prohibition period reflect the production of near or non-alcoholic beer (i.e., beer with less 0.5 percent alcohol by volume), a close substitute for beer when spiked with absolute alcohol (ethanol). The growing difference between consumption and production after World War II reflects growth in exports. In 2002, Americans consumed about 180 million barrels of domestic beer and about 23 million barrels of imported beer.

Per-capita consumption exhibits a similar but more variable pattern. Figure 1.2 plots domestic beer per-capita consumption from 1863 through 2000 and shows that consumption rose steeply before reaching a pre-Prohibition peak in 1914 at 21 gallons per capita. The data also reveal the effectiveness of the prohibition movement after 1914,

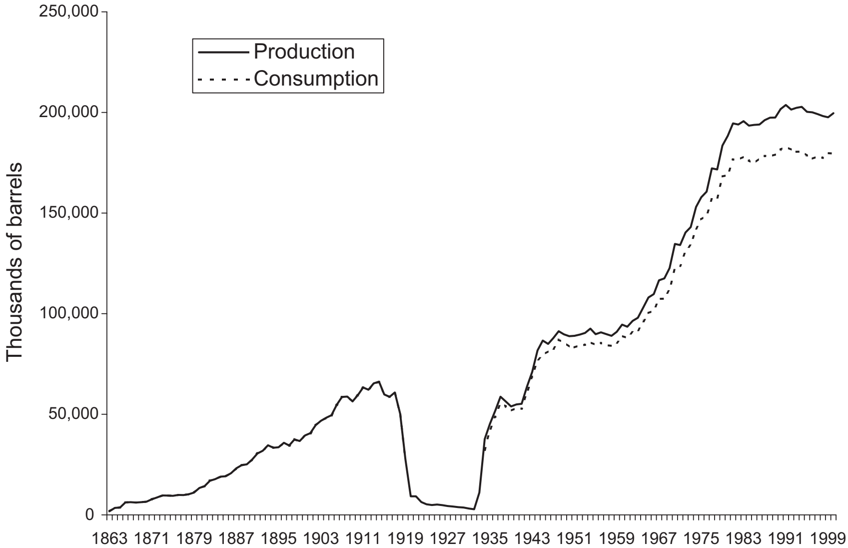

Figure 1.1
Total U.S. beer production and consumption, 1863–2000. Sources: U.S. Treasury Department, Bureau of Alcohol, Tobacco, and Firearms, as reported in *Brewers Almanac* (various issues).

the year that the Webb-Kenyon Act went into effect. After Prohibition was lifted, per-capita consumption increased rapidly from 1934 through 1936. This may have resulted from habit and the addictive nature of alcohol. The level of addiction would be relatively low immediately after Prohibition but would rise as more and more consumers developed a taste for beer and built up a tolerance for alcohol. Per-capita consumption rose rapidly again during World War II, declined during the 1950s and the early 1960s, increased before peaking in the early 1980s, and generally trended downward thereafter.

By world standards, the United States is a major beer-drinking nation (table 1.3). In 2001, U.S. per-capita beer consumption was about 22.0 gallons. The United States ranks 11th among developed countries in beer consumption, 34th in wine consumption, and 20th in spirits consumption. Most of the major beer-drinking nations are in Northern and Eastern Europe. The average consumer in the Czech Republic or in Ireland drinks almost twice as much beer as the average U.S. consumer. Per-capita beer consumption in France and Italy is less than half what it is in the United States.

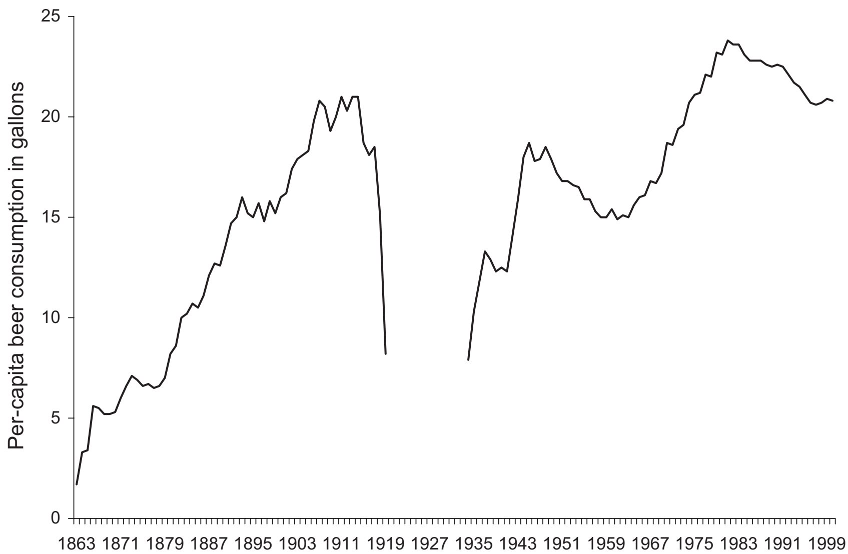

Figure 1.2
U.S. per-capita beer consumption, 1863–2000. Sources: U.S. Treasury Department, Bureau of Alcohol, Tobacco, and Firearms; U.S. Bureau of the Census as reported in *Brewers Almanac* (various issues).

1.3 A Profile of the Industry

The U.S. brewing industry is an important part of the national economy. Beer is one of the commodities used by the U.S. government to calculate the consumer price index (CPI). Beer accounts for about 58 percent of alcohol consumption in the United States (*Modern Brewery Age*, March 23, 1998; *Beer Industry Update: A Review of Recent Developments* 2002). In 2002, the industry accounted for more than $64 billion in sales, employed more than 850,000 U.S. workers, and paid $8.7 billion in federal and state excise and sales taxes. Today there are more than 2,200 beer wholesalers and more than 1,800 brewers and beer importers in the United States (Beer Institute 2002–2003).

It is common to divide U.S. brewers into three segments (sometimes called "strategic groups"). The first segment includes the traditional brewers that entered the market immediately after Prohibition and produce predominately domestic-style lager. Because of their early entry, their large size, and their style of brewing, they are called "traditional," "macro," or "mass-producing" brewers. Firms within this segment are sometimes distinguished by their geographic scope of

Table 1.3
Per-capita consumption (gallons) of beer, wine, and spirits for the leading 40 beer-drinking countries, 2001. Source: *World Drink Trends 2003*.

Beer rank		Beer	Wine	Spirits
1	Czech Republic	41.8	4.4	1.0
2	Republic of Ireland	39.8	3.1	0.6
3	Germany	32.5	6.3	0.5
4	Austria	28.2	8.2	0.4
5	Luxembourg	26.7	17.0	0.4
6	Denmark	26.1	8.2	0.3
7	Belgium	25.9	4.9	0.3
8	United Kingdom	25.7	4.6	0.4
9	Australia	24.6	5.3	0.3
10	Slovak Republic	22.8	2.9	1.2
11	*United States*	*22.0*	*2.0*	*0.5*
12	Netherlands	21.3	5.0	0.4
13	Finland	21.2	5.3	0.6
14	New Zealand	21.1	4.4	0.4
15	Venezuela	21.1	—	0.3
16	Spain	19.8	9.6	0.6
17	Canada	18.2	2.7	0.5
18	Hungary	16.9	8.2	0.8
19	Portugal	16.2	13.2	0.4
20	Poland	16.0	1.6	0.9
21	Cyprus	15.9	4.4	0.8
22	Switzerland	15.1	11.4	0.4
23	South Africa	14.7	2.4	0.2
24	Sweden	14.6	4.1	0.3
25	Norway	13.4	2.9	0.2
26	Romania	13.3	7.9	1.2
27	Iceland	12.9	2.1	0.3
28	Mexico	12.8	0.1	0.2
29	Brazil	12.3	0.5	0.4
30	Colombia	11.9	0.1	0.4
31	Malta	11.0	5.1	0.3
32	Japan	10.6	0.7	0.8
33	Paraguay	10.6	0.4	—
34	Greece	10.3	9.0	0.5
35	Argentina	9.8	9.0	0.1
36	France	9.5	15.0	0.6
37	Latvia	9.2	1.1	1.5
38	Russia	7.9	2.0	1.7
39	Italy	7.6	13.2	0.1
40	Chile	7.1	4.2	0.4

operation, as local, regional, or national producers. This distinction was especially important from the 1950s through the 1980s, as the large national firms gained share from the local and regional brewers. Among the regional producers still in existence are the Pittsburgh Brewing Company, the Latrobe Brewing Company, and the High Falls Brewing Company. Only three macrobrewers produce and market beer nationally today: Anheuser-Busch, Coors, and Miller.

The second segment consists of more recent entrants that started out with very small brewing facilities. Firms in this segment include brew pubs, restaurant-breweries that sell most of their beer on site, and microbreweries (small breweries that sell most of their beer off site). Firms in this segment generally brew European-style beer, which is called "domestic specialty" or "craft" beer to distinguish it from imported beer of the same style. Because several microbreweries are no longer micro in size, the larger microbreweries are called "regional specialty brewers." This general class, which includes brew pubs, microbreweries, and regional specialty breweries, is called the domestic specialty or craft brewers. Among the well-known domestic specialty brewers are the Anchor Brewing Company, the Boston Beer Company, the Sierra Nevada Brewing Company, and the New Belgium Brewing Company.

The third segment includes international producers who sell beer in the United States. Imported brands are far from homogeneous, however. For example, many of the brands from Canada and Mexico are similar to regular domestic beer, while most brands from England and Ireland are more like domestic specialty beer. The unifying feature of this group is that the imported brands sell for a substantial price premium, owing in part to the high cost of shipping beer to the U.S. market. Among the most popular imported brands are Corona (from Mexico), Heineken (from the Netherlands), and Labatt Blue (from Canada).

Figure 1.3 illustrates the relative popularity of the main styles of beer sold in the United States in 2001. Imported beer commands a market share of more than 10 percent. In spite of rapid growth and notoriety, domestic specialty beer has a market share of only about 3 percent, comparable to that of ice beer or malt liquor. The remaining styles of beer are brewed by the mass producers and have a sizable share of the market. What one might consider traditional American beer (i.e., domestic super-premium, premium, popular, and light beer) accounts for about 75 percent of all beer sales in the United States. Light beer is

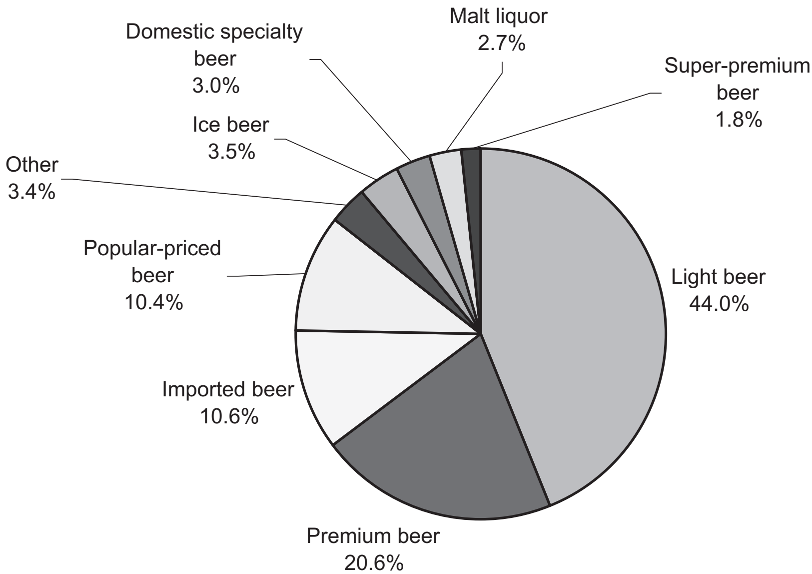

Figure 1.3
Market shares of leading beer categories in the United States in 2001. Source: See appendix A.

the most popular category, with a 44 percent market share. Of the five leading brands sold in the United States in 2001, all are American-style lagers: Bud Light (with a market share of total U.S. production at 18.7 percent), Budweiser (18.2 percent), Miller Lite (8.8 percent), Coors Light (8.6 percent), and Natural Light (4.5 percent).

1.4 Fundamental Questions and Overview

Because of their production dominance, considerable discussion is devoted to the mass producers and their core products. After all, Anheuser-Busch and Miller spill more beer than the specialty brewers produce.[11] The mass-producing sector is of particular interest because mass producers have continued to exit the industry and the reasons for this trend are not fully understood. One hypothesis is that technological change has made large-scale production more efficient. Another suggests that greater advertising competition has forced many local and regional brewers out of business. Chapter 2 sets the stage for this debate by showing how demand and cost conditions in the brewing industry have changed since World War II. Chapter 3 documents the increasing concentration among the mass producers, surveys previous studies, and provides evidence that scale economies and advertising competition have contributed to a high level of concentration.

Anheuser-Busch is currently the largest and most successful brewer in the world. The industry price leader and one of the most profitable brewers in the United States, Anheuser-Busch maintains a clear competitive advantage over other U.S. brewers. The sources of its success will be discussed in chapters to come.

On its rise to the top, Anheuser-Busch faced a number of challengers. In the late 1940s and the early 1950s, Anheuser-Busch traded the number 1 spot with Pabst and Schlitz. Schlitz, the last competitor to hold the top spot in brewing (in 1956), continued to challenge Anheuser-Busch through the mid 1970s. But Anheuser-Busch faced its stiffest competition from Miller. Philip Morris Inc., a successful cigarette producer, purchased Miller in 1969–1970 and vowed to capture the number 1 spot from Anheuser-Busch. The fierce battle that ensued led to brand proliferation and to escalating advertising spending among the leading brewers. At the local level, Anheuser-Busch also faced stiff competition from several strong regional brewers. For example, Coors operated regionally in the 1970s and was the leading brewer in Oklahoma in 1977, with a 59.6 share of the state's beer sales (*Beer Industry Update: A Review of Recent Developments*, 1982). Chapter 4 provides a brief history of the 13 most influential brewers and describes the strategies contributing to their successes and failures.

The emergence of microbreweries is of interest for two reasons. First, the sheer number of entrepreneurs who started brew pubs or microbreweries and their phenomenal success into the mid 1990s merits attention. Second, these small brewers have returned to the brewing practices of Europe, a strategy that has proven successful and changed the behavior of many mass producers. Today, most domestic mass producers offer European-style beers along with their flagship brands. Chapter 5 describes the microbrewery movement and the behavior of the leading domestic specialty brewers. Imports and their importance to the domestic market are also discussed in that chapter.

Another goal of the book is to evaluate the extent to which the behavior of brewers is consistent with game theory. The approach taken here borrows from the new industrial organization by focusing on game-theoretic analysis of optimal firm actions and from strategic management by investigating the strategic histories of firms (Ghemawat 1997; McAfee 2002). The best way to conduct such research is with a case study of an oligopolistic industry. Chapters 3, 6, and 7 examine the important strategies used in brewing and how they have influenced the evolution of the industry. The evidence suggests that game theory explains the behavior of brewing firms. Brewers used various pricing, advertising, brand-proliferation, merger, and "Hail Mary" strategies to compete in a "preemption race" in advertising and in a "war of attrition" that was thrust upon them by external forces.

Ongoing concentration and the dominance of Anheuser-Busch evoke concern about the industry's performance. Chapter 8 investigates the industry's efficiency, equity, and technological progress. In view of Anheuser-Busch's prominence, the market power exerted by that firm is estimated for several time regimes.

Chapter 9 provides a policy assessment of the industry. As many mass-producing brewers exited the industry by merging with other brewers, the U.S. Department of Justice established several important anti-merger precedents by successfully challenging mergers in brewing. These cases are reviewed, and policies needed to ensure an adequate degree of competition in brewing are discussed. Estimates of the external costs associated with drunk driving and alcohol abuse are summarized, and proposals by public health officials to mitigate the external costs of alcohol consumption and abuse, such as higher excise taxes and tighter advertising restrictions, are surveyed and assessed.

The final chapter provides predictions concerning the future of the brewing industry and offers suggestions for future research.