



ECONOMIC GEOGRAPHY

A CONTEMPORARY INTRODUCTION

THIRD EDITION

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CHAPTER 1

GEOGRAPHY

How do we think spatially?

Aims

- To introduce the core geographical themes of our analysis: spatial patterns; the distinctiveness of place; connections across space; and territorial power.
- To illustrate these geographical themes through a detailed study of bottled water as a controversial but ubiquitous commodity.

1.1 Introduction: Message in a Bottle

There are a few objects that appear in university classrooms the world over. Laptop computers and smartphones are now standard equipment; a cup of coffee may be perched on the edge of the desk; and, of course, pens and paper are still used by a few traditionalists. Blending into the background scenery of the classroom, or poking out of pouches in backpacks, there will also usually be numerous bottles of water. Some may be reusable metal containers, perhaps emblazoned with a university logo, but many will be made of disposable plastic – bought from a convenience store, supermarket, or vending machine. Much of this water will have been bottled locally, often by the branch operation of a large transnational corporation. Some of it may have been shipped considerable distances – from France, Norway, New Zealand, Fiji, or Canada (see Figure 1.1).



Figure 1.1 Bottled water for sale in a Toronto grocery store: some bottled from local tap water (Nestlé's Pure Life, Coca-Cola's Dasani, and PepsiCo's Aquafina), but also spring water from France, Fiji, Norway, and New Zealand

Source: the authors.

We tend to give little thought to the rise of bottled water in our everyday lives. While we often reflect on the emergence and impact of computer technology, the Internet, and smartphones, we usually ignore the simple plastic water bottle. Yet, like computer hardware and software, bottled water has proliferated as a widespread commodity only within the last generation. The growth rates in bottled water production and sales have been astonishing. In 1970, the average person in the United States consumed just 5.5l of bottled water per year (mostly from large water coolers) (Hawkins and Emel 2014). Throughout the 1970s, 1980s, and even the 1990s, it would have been rare to see a water bottle in a university lecture hall. By 2015, however, US consumption had increased to 138l per person – a 25-fold increase. In 2017, bottled water consumption in the United States exceeded that of carbonated soft drinks for the first time. A similarly dramatic growth in consumption is evident in the United Kingdom, where the total consumption of bottled water grew from 30 million litres in 1980, to 1.4 billion litres in 2000, and 3.2 billion litres by 2016. The UK bottled water business is worth over US\$3 billion per year. Meanwhile, in the Global South, even more dramatic increases have been seen. In China, total bottled water consumption grew from 2.7 billion litres in 1997 to over 77 billion litres in 2015. Globally, it is estimated that the bottled water industry will generate annual sales of US\$280 billion by 2020 (Elmhirst 2016).

These trends reflect a number of processes. In the Global South, including China, there has been a huge expansion of middle-class consumers with disposable income to spend. At the same time, many governments have failed to provide



Figure 1.2 Home or office delivery of bottled water in Guangzhou, China

Source: the authors.

accessible and safe drinking water to their expanding populations. This has led to an increased dependence on bottled water (especially home and office delivery of large-format containers – see Figure 1.2). In the Global North, where incomes were already relatively high, and safe tap water is widely available, the growth of bottled water consumption is related in part to a deepening focus on personal health and fitness. Water is seen as a healthy alternative to sugary soft drinks. In all contexts, packaging technology, and especially the development of the polyethylene terephthalate (PET) plastic bottle in the 1990s, has made bottled water easier and cheaper to transport. In 2016, more than 480 billion plastic drinking bottles were used across the world (for water and other drinks), up from about 300 billion in 2004. If these bottles were placed end to end, they would reach more than halfway to the sun (Laville and Taylor 2017). The expansion of the industry has happened alongside the emergence of large bottled water companies that have the expertise and the capital to invest in producing, distributing, and marketing bottled water products. These include major corporations such as Nestlé, Coca-Cola, Pepsi, and Danone (see Box 1.1).

The bottled water industry provides an example of a rapidly growing sector that revolves around a relatively simple product. As such, it provides a good case study for us to use throughout this chapter as we explore geographical approaches that can be applied to the economy all around us. In Section 1.2, we will examine some of the controversies that have swirled around the growth of bottled water, including questions of environmental impact and economic fairness.

CASE STUDY

Box 1.1 The corporate world of bottled water

There are four major corporate producers of bottled water who dominate many markets around the world:

- The British–Swiss food and drink giant Nestlé produces bottled water in 34 countries and owns brands such as Perrier (France), San Pellegrino (Italy), Poland Spring (USA), Arrowhead (USA), Buxton (UK), and Nestlé Pure Life. In 2016, Nestlé sales of bottled water amounted to about US\$8.8 billion, representing around 11 per cent of global bottled water sales.
- The French food producer Danone owns brands such as Evian, Volvic, and Danone Aqua. Danone’s water business recorded around US\$5 billion in global sales in 2016 – the second largest by volume after Nestlé. The company’s largest markets in 2016 were China, Indonesia, and France.
- The Coca-Cola company, based in Atlanta, Georgia (United States), owns brands such as Dasani, Glaceau Smart Water, and Glaceau Vitamin Water. In addition, since 2002, Coca-Cola has been the distributor of Danone’s brands within North America. In 2016, Dasani was the single largest brand of bottled water in the United States. Mount Franklin, also owned by Coca-Cola, is the single largest brand in Australia.
- PepsiCo, headquartered in Harrison, New York, owns many food and beverage businesses, but its largest revenue source is its North American beverage division, which includes brands such as Aquafina. Aquafina had sales of over US\$1 billion in the United States in 2016 and is produced in 40 bottling locations across the country. Like the other major water bottlers, Aquafina has moved extensively into marketing flavoured, sweetened, and carbonated versions of its basic products.

While these firms are the dominant players in the global bottled water business, their significance varies across different markets. In India, for example, Bisleri, based in Mumbai, dominates the market with a 24 per cent share (India Water Review 2017). The ‘own-brand’ labels of major supermarkets are also significant players. In the United States and United Kingdom, for example, Canada’s Cott Corporation has recently developed a significant market share by acquiring bottled water producers and manufacturing products for retailers such as Safeway and Sainsburys. In the United States, with a 13.1 per cent share of the bottled water market, Cott is just behind Nestlé, Coke, and Pepsi (Stivaros 2017).

These firms have not simply responded to growing awareness about personal health and fitness, but have also driven these trends by advertising the benefits of water consumption and emphasizing the purity of their products. They have had the legal and lobbying resources to gain access to water from municipal supplies or from groundwater aquifers. They also commit a lot of resources to reassuring governments and the public of their concern for environmental sustainability, the healthiness and safety of their products, and their responsible corporate behaviour. This is not surprising. To a great extent, these firms are dependent on how governments respond in terms of granting permission to extract water, regulating the products they are selling, and facilitating the recycling of plastic bottles after use. The firms also support industry associations and lobby groups, such as the International Bottled Water Association (www.bottledwater.org), whose role is to promote the interests of the sector as a whole.

These questions allow us to see that economic processes are also contentious and political processes. Our goal in the rest of the chapter will then be to demonstrate how a geographical approach can provide a systematic and illuminating perspective on these issues of contention. This geographical approach is developed through four questions about space:

- How are economic activities distributed unevenly across space and how do we explain the unevenness of economic life (Section 1.3)?
- How do the unique features of specific places shape the form and development of economic activities (Section 1.4)?
- How are economic activities across space connected together so that what happens in one place profoundly affects what happens in another (Section 1.5)?
- How does power over space, especially in the form of territory controlled by governments ('the state'), influence economic lives and landscapes (Section 1.6)?

1.2 Bottled Water: A Contentious Commodity

The emergence of bottled water as a major consumer product, and as an industry, has been controversial. In recent years, many educational institutions have entirely banned bottled water from their food outlets and vending machines. These bans, and the wider advocacy movements against bottled water, raise several issues, and especially the environmental impacts of bottled water production and consumption, and the economic relationships involved in the industry. In this section, we will unpack these concerns and the ways in which they have been contested by organizations and firms within the bottled water industry.

Environmental Issues

Environmental issues feature prominently in the arguments presented by opponents of bottled water. Where water bottling firms draw their supply from wells and springs, there have been concerns about the exhaustion of groundwater supplies. This has been an issue especially in places where water is taken from small aquifers and may reach volumes that would compete with the needs of local water utilities. Conflicts have been particularly acute where bottlers continue to draw water for profit when supplies are running low. In 2014, California was experiencing a state-wide drought, but bottlers were extracting water from both aquifers and municipal supplies. As Figure 1.3 shows, there were various companies operating across the state, but the case of Ethos Water drew particular attention because of its stated

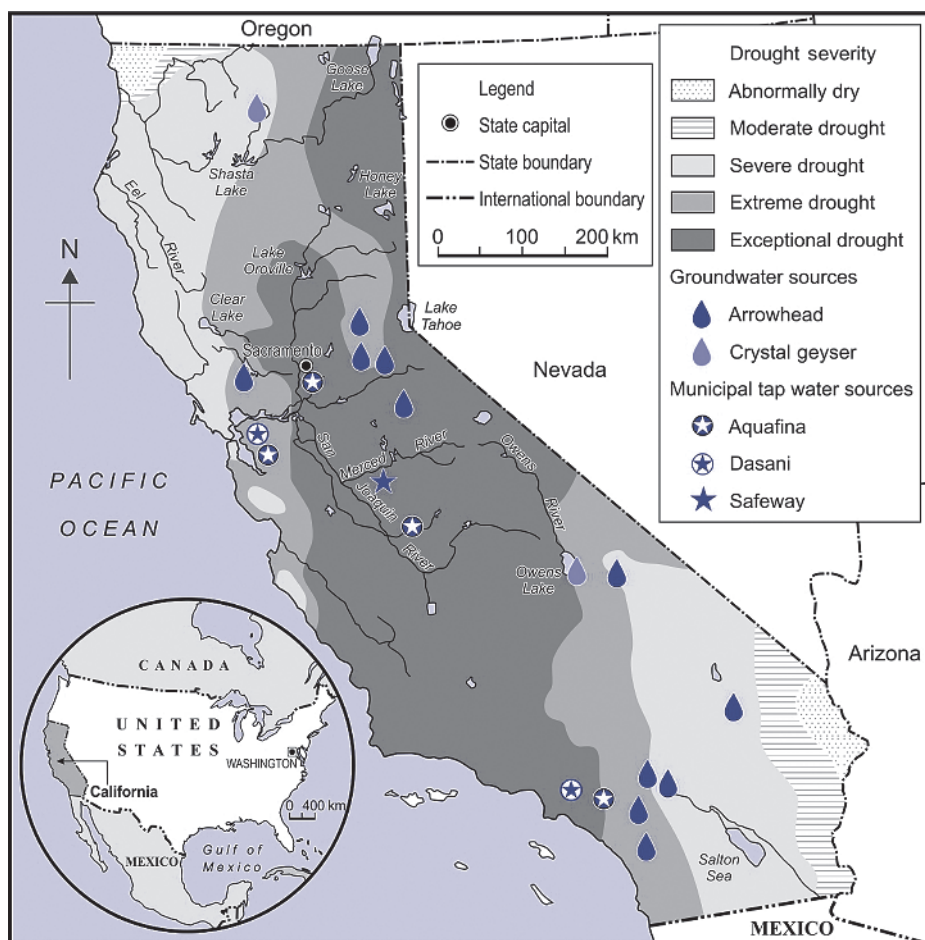


Figure 1.3 Californian drought and water bottling in 2015

Source: based on information from US Drought Monitor/Coca-Cola/Aquafina.

ethical mission to assist in water supply projects around the world through a 5 cent donation from each bottle sold. Founded in 2002 and bought by Starbucks in 2005, the brand was bottled in a plant owned by Safeway supermarket in Merced, California, right in the heart of the state's most drought-stricken region. In California and elsewhere, bottlers have argued that they draw water in full compliance with their agreement with local authorities. Nevertheless, in May 2015, Starbucks quickly announced it would relocate production of Ethos Water to Pennsylvania (Lenzer 2015). Companies have argued that water for bottling represents a tiny fraction (0.02 per cent) of the total groundwater withdrawn in the United States each year. Furthermore, they argue, because a high proportion actually goes to human consumption rather than down a household drain, it is highly efficient.

While water sources form one set of environmental controversies, another concern is the plastic used in bottled water. PET plastic bottles are now standard, but they raise three important concerns. First, the raw material for the bottle is essentially oil, so the manufacturing process involves all of the environmental impacts associated with drilling, processing, and transporting oil in the global petrochemical industry. In one memorable advertising campaign for Brita water filters in 2008, the company pointed out that 'Last year 16 million gallons of oil were consumed to make plastic water bottles'. The caption came with an image of crude oil spilling out of a person's mouth. It is worth noting that this image (and statistic) was so striking that the International Bottled Water Association still refutes it on their website as one of the myths about their product (IWBA 2018).

A further area of environmental concern relates to the transportation of bottled water by road and rail, and the resulting carbon emissions. This compares very unfavourably with the highly efficient system of pipes used to transport municipal water supplies in many countries. One estimate suggests that to produce, bottle, cool, and transport bottled water requires between 1,000 and 2,000 times as much energy as tap water (Gleick 2010). Against this point, the industry argues that most bottled water is sourced relatively locally and long-distance shipments are the exception.

Finally, the disposal of plastic bottles after use contributes to a growing global problem with plastic accumulation in landfills, water systems, and food chains. Although PET bottles are recyclable, rates vary greatly around the world. One report suggests that in 2010, Japan recycled 72 per cent of PET bottles, compared with 48 per cent in Europe and 29 per cent in the United States (McCurry 2011). Producers have responded by increasing the recycled content in their plastic containers, supporting recycling efforts, and achieving efficiencies in packaging design so that less plastic is used in the first place. Coca-Cola, for example, reported in 2017 that it had refilled or recycled the equivalent of 60 per cent of the containers it had put out into circulation (including water and other drinks products) (Coca-Cola Company 2017). Producers also highlight their contributions to environmental causes in the places where their water is produced and consumed, and to philanthropic initiatives around the world.

Economic Fairness

Even the most expensive municipal water supply costs consumers a fraction of the price of bottled water. Some estimates suggest that bottled water sells for between 240 and 10,000 times the cost of tap water, depending on its price point and where it is purchased. This is seen as especially unfair given that several brands of bottled water use tap water as their raw material.

This argument was directed at Coca-Cola's Dasani brand of bottled water when it was first introduced into the United Kingdom in 2004. When British tabloid newspapers learned that Dasani was filtered and treated municipal tap water, headlines included 'Coke sells tap water for 95p' and 'The Real Thing?' This controversy, alongside a contamination scare involving excess levels of a carcinogen called bromate, meant that the company was forced to recall 500,000 bottles and withdraw the brand from the United Kingdom and the rest of Europe. It was 10 years before the company returned with a bottled water product in the United Kingdom (this time under the brand name Glaceau Smartwater). The markup on tap water or groundwater sold in bottles has been a continuing point of contention for activists (Clarke 2007).

More broadly, opponents of bottled water argue that whether the water is from a tap or from the ground, such massive markups represent the extraction of private profit from what is essentially a public resource. In many jurisdictions bottled water companies pay very little (sometimes nothing at all) for the right to draw upon groundwater. Until recently, bottled water firms in Ontario, Canada, were paying the provincial government just C\$3.71 for every million litres of groundwater extracted. After a public outcry about the profits being made from a public resource, this fee was increased by C\$500 in August 2017. Bottled water firms, and industry advocates, tend to accept these small charges on their activities. After all, even this higher charge represents a tiny fraction of 1 cent for every bottle sold. Producers argue that the very large markups discussed by their critics are misleading because they ignore investments made in treatment, testing, and bottling equipment (see, for example, www.bottledwater.org). The companies also point out that bottled water is often far less expensive than some of the estimates suggest, especially when water is bought in bulk at a supermarket.

Although they vary in the details, the contentious issues concerning bottled water have surfaced in many contexts around the world. Local governments need to consider how they will regulate the extraction and sale of their water resources. Schools and universities consider what kinds of products they should allow on their premises. Individual consumers decide whether to buy bottled water or just stick with what comes out of the tap. In each case, some combination of environmental issues and economic justice has been at the heart of the discussion. They serve as a useful reminder that economic life is nearly always contested as lines are drawn between winners and losers (whether they are places, people, or environments).

A key question for us as economic geographers is whether there are ways in which we can apply a geographical perspective to these issues and debates. In particular, can a geographical focus on space provide some analytical clarity for these controversies? We suggest that it can, and the next four sections of this chapter will each take up a geographical approach and examine how it sheds significant light on bottled water controversies.

1.3 Location and Patterns in Space

It is not always obvious that a phenomenon in one location is part of a larger pattern. If you live in a town that has a water bottling facility, it might be easy to assume that this particular economic activity is commonplace. The same is likely true for any form of production or consumption – we tend to normalize whatever we see around us, and we seldom consider how the local economic landscape is part of a very uneven distribution of activities and experiences across space on a global scale. We might also normalize our own economic lifestyles, forgetting that the world is a patchwork of very uneven levels of wealth and patterns of consumption. A geographical approach highlights and questions these uneven spatial distributions of economic activities and processes. It enables us to ask critical questions about why these patterns exist, and who/where is winning and losing within our complex economic system. In this section, we will illustrate this kind of thinking using two examples from the bottled water case study. The first is the distribution of bottled water production in the United States. The second is the distribution of bottled water consumption around the world.

Location in Space

Figure 1.4 shows the distribution of water bottling facilities across the United States, along with population density by state. Perhaps the most striking aspect of this map is how widely distributed these facilities are across the country. This is certainly a very different pattern than we would find for other industries, such as car manufacturing, film production, or software development. By delving into the reasons for this spatial distribution, we can start to understand some of the dynamics driving the bottled water industry.

There are two key factors that determine where bottling plants will be located. The first is the source of water. If a company is bottling natural spring water or groundwater on a large scale, then a specific combination of climatic, geological, and landscape conditions need to be found. This would explain why bottling facilities are sometimes located in parts of the country with very low population densities, such as Montana and Nebraska. More importantly, perhaps, local government approval is needed, which would partly depend on community support. Given that brands of bottled water are especially sensitive to their reputation,

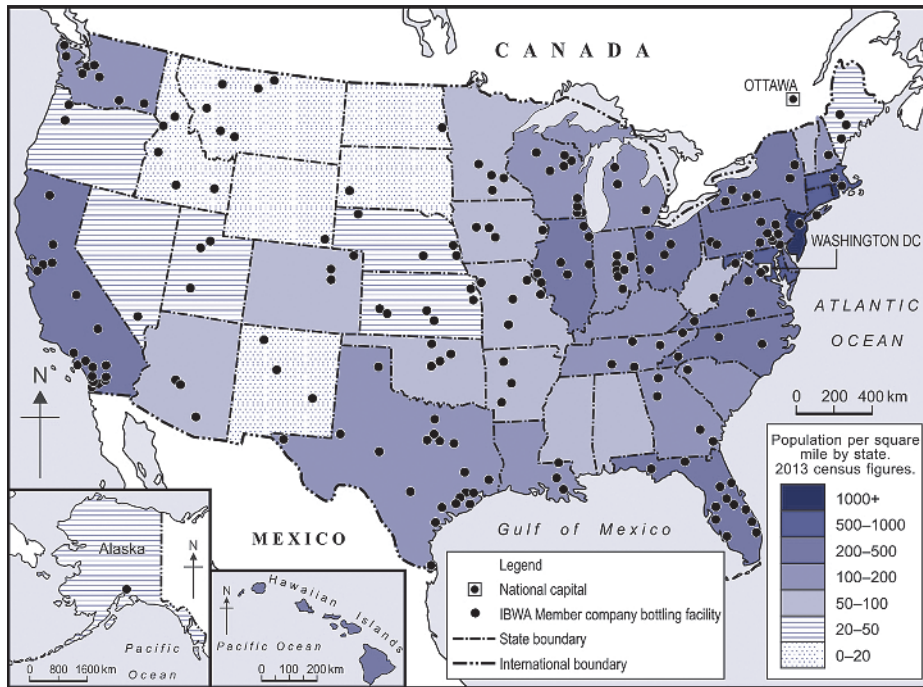


Figure 1.4 US population density and water bottling plants, 2013

Source: adapted from IBWA, <http://www.bottledwater.org/bottled-water-visuals> and Wikipedia, https://en.wikipedia.org/wiki/List_of_U.S._states_and_territories_by_population_density.

a move might be necessitated if problems arise in one location – as we saw earlier with Starbucks relocating its Ethos Water bottling operation to Pennsylvania during the Californian drought.

For many brands of bottled water in the United States, however, the source is municipal tap water rather than groundwater. In these cases, bottling facilities can be located wherever the local water utility is willing to sign a supply contract with a water bottling company. It is then much easier to locate near concentrations of demand such as large urban regions. Bottled water is a bulky and heavy (and therefore expensive) commodity to move around and so there is considerable incentive to locate near major markets. This would explain why there are some concentrations in Figure 1.4 near places of high population density, such as New York City and the Northeastern urban corridor, Chicago in the mid-West, and Los Angeles in Southern California.

It is also interesting to note some of the factors that are probably *not* relevant in water bottling location decisions. For some industries, such as high-end financial services in New York City, finding a highly skilled pool of labour would be a key factor in determining their location. This is not the case for bottled water, as the industry actually employs relatively few people. Only around 14,000 workers

are directly employed in water bottling facilities across the entire United States (Stivaros 2017). Even as production has expanded, the level of employment has remained quite static – reflecting the efficiency of production facilities that are increasingly automated. Water bottlers are also largely free from considering where their suppliers are located. The manufacturer of a complex product, for example in the auto industry, would need to consider the location of a huge range of suppliers and how these components could reach an assembly plant quickly and efficiently. For a mundane commodity like bottled water, there are no such complications because production happens at a single installation. Finally, water bottlers are not responding to local government incentives. A large/high-tech manufacturer might expect to attract some fairly generous tax breaks and other incentives from various levels of government. With relatively few jobs at stake in a water bottling plant, local governments are unlikely to be offering much.

In all of these ways, when we look at the locational decision-making of an economic activity, we can analyze why it happens in some places and not others. We can also identify the factors that are important in this patterning (and those that are not). At a relatively straightforward level, then, we can ask questions about why companies decide to produce goods and services in particular places. While one set of patterns and causes can be identified for bottled water, every sector will be different. Bottled water is a relatively simple commodity, but there are far more considerations at play for activities such as software development, car manufacturing, or professional business services. Unpacking these kinds of locational decisions has been a fundamental part of Economic Geography for decades.

Patterns of Unevenness

The patterns that exist in the economic world around us are, however, much larger than the locational decisions made by private companies. Table 1.1 shows 14 countries, including those with the world's largest per capita consumption of bottled water, or the largest total consumption. There are some intriguing geographical patterns here.

We can see in Table 1.1 an expectedly high level of per capita consumption in some of the world's wealthiest nations, such as the United States and Saudi Arabia. But why, over time, has wealth accumulated in these countries? This is a question that would require us to reach into the histories of colonialism, the geopolitics of power in the contemporary world, the geographical configuration of different global production processes, the location of key resources (e.g. oil), and some of the fundamental processes that underpin capitalism. Later in this book we will delve into these questions, but for now there are some more specific issues that arise in the data.

One surprising pattern in Table 1.1 is the juxtaposition of countries with high per capita consumption of bottled water that have very different levels of income

Table 1.1 Per capita and total consumption of bottled water, selected countries, 2015

	Per capita consumption of bottled water 2015 (litres)	Total consumption of bottled water in 2015 (millions of litres)
Mexico	244.2	30,591
Thailand	203.7	13,718
Italy	177.9	10,887
Germany	142.3	11,736
France	139.3	9,043
United States	138.2	44,436
Belgium-Luxembourg	132.9	1,558
Spain	115.1	5,432
Saudi Arabia	114.7	3,429
United Arab Emirates	112.0	1,073
Indonesia	100.9	25,800
Brazil	99.6	20,280
China	55.4	77,625
India	13.6	17,399

Source: Rodwan (2016). Reproduced with permission of Beverage Marketing Corporation.

and economic development. It is surprising, for example, to see Mexico and Thailand at the top of the list, followed by Italy and Germany. To explain this pattern, we need to understand that there are different reasons for high levels of consumption in different parts of the world. In the Global South, including Mexico and Thailand, much of the bottled water consumption is in large-format containers and provides everyday drinking water. In Mexico, two-thirds of bottled water consumption is through large-format home and office deliveries (Rodwan 2016). In both countries, these levels of consumption reflect their status as middle-income economies with a significant, and rapidly growing, urban middle class. But they also reflect popular mistrust regarding the safety of municipal water supplies, and a lack of access to such a supply in some communities. Thus, several of the arguments laid out in Section 1.2 would have to be modified to reflect the fact that tap water may not, in fact, be a viable alternative in these contexts.

European countries (Italy, Germany, and France), on the other hand, have perfectly safe tap water, but they also have a long tradition of consuming mineral and spring waters that goes back several centuries. It was well-established Italian and French mineral waters (such as Perrier and San Pellegrino) that initially led the surge in bottled water consumption in the 1990s, and they continue to be major premium brands today. High consumption in other wealthier countries, such as

the United States, tends to be more about convenience and moving away from soft drinks because of health concerns. Bottled water, especially since the emergence of lightweight PET bottles, has become a convenient, portable form of ‘personal hydration’ (to use the industry’s preferred terminology). It has also, in some cases, become a status symbol and lifestyle product. This is especially so at the higher end of the market where appeals to exotic locations, the purity of nature, and even medicinal powers are made.

At the same time, the growth in bottled water demand in wealthier markets has slowed significantly, in part because of the controversies described in Section 1.2. We can also note that some wealthy countries such as Sweden (with a per capita consumption of just 10l per person) do not even appear on this list. There, and in other Scandinavian countries, a consciousness around the environmental costs of using disposable plastic bottles has limited their appeal. Of course, all of these explanations are speculative, but they provide some insights into why we might see such geographical patterns of bottled water consumption. Even a very basic economic activity such as this can manifest itself very differently around the world. By mapping out these global patterns of unevenness we can start to ask questions about why the economic landscape is shaped in certain ways.

It is also important to note that these explanations have all been situated at the national scale. If we looked at other scales, we would find more complexities. For example, it would be easy to find wealthy enclaves in the cities of India or China where levels of bottled water consumption are very high. Equally, we could find places in the Global North where bottled water is a necessity, not a choice made for reasons of lifestyle or convenience. For example, First Nations (Indigenous peoples) who are living on reserves in Canada have long faced contaminated water supplies. In late 2016, there were 81 drinking water advisories in 44 First Nations, with bottled water being shipped to them by the Canadian federal government (David Suzuki Foundation 2017). Bottled water is not, therefore, only a luxury commodity – for some in both the Global North and Global South it fulfils a basic need.

1.4 The Uniqueness of Place

In explaining spatial patterns in Section 1.3, it quickly became necessary to discuss particular places and their distinctive characteristics. It was only by acknowledging longstanding French and Italian traditions of drinking mineral water, or by noting the inadequacies of public tap water supply in other places, that we could put forward a nuanced account of the spatial patterns observed. Similarly, in looking at the pattern of bottled water production across the United States, we noted that accessing groundwater relied on a convergence of physical conditions in the natural environment and political conditions in terms of government approvals and community support. These features provide us with the beginnings of an understanding of place.



Figure 1.5 The Perrier production facility in the village of Vergèze, France. The nineteenth-century chateau where the brand originated is in the bottom right of the picture

Source: Perrier.

A place is a unique ensemble of human and physical features on the earth's surface, including environmental conditions, physical and human landscapes, cultural practices, political institutions, social life, and economic activities. Places do not, however, just create themselves internally – they are the product of various relations and flows across space that intersect differently in different places to generate one-of-a-kind outcomes. It is the uniqueness of those outcomes that plays a part in determining where economic activities will 'take place'.

Where do these distinctive features of a place come from? Some are part of the physical environment and owe little to the impacts of human activity. These should not be forgotten as they can matter a great deal in determining the resources that form the basis for a place's economic development. Perrier water, for example, is drawn from a naturally carbonated spring in the Occitanie region of southern France (Figure 1.5). The carbonation results from volcanic gases that are emitted near the surface rocks where springs occur. The product is now artificially carbonated, but both water and carbon dioxide are locally sourced, and the carbonation level reproduces the level found naturally. The distinctive taste of the water is also a product of the unique combination of minerals found in local rock strata.

The physical characteristics of place can sometimes become an important part of a product's branding when it is sold elsewhere. In a sense, the place itself is being marketed. Why else would consumers buy FIJI Water shipped from the island of Viti Levu in the south Pacific? The reason is clear in the marketing material circulated by the company (which is headquartered in Los Angeles):

On a remote Pacific island, 1,600 miles from the nearest continent, equatorial trade winds purify the clouds that begin FIJI® Water's

journey through one of the world's last virgin ecosystems. As tropical rain falls on a pristine rain forest, it filters through layers of volcanic rock, slowly gathering the natural minerals and electrolytes that give FIJI Water its soft, smooth taste. The water collects in a natural artesian aquifer, deep below the Earth's surface, shielded from external elements by confining layers of rock. Natural pressure forces the water towards the surface, where it's bottled at the source, free from human contact until you unscrew the cap. Untouched by man™. Earth's Finest Water®. <http://www.fijiwater.com/company.html>

This quote also draws our attention to the fact that the representation or reputation of a place can sometimes be just as important as its characteristics in reality. A place becomes part of a brand, whether it is the purity of a source of spring water, a pair of Italian shoes, or the cutting-edge innovation of Silicon Valley in California (we will examine the role of place in consumption in more detail in Chapter 7, and in high-tech production in Chapter 12).

While physical environmental properties can form one dimension, a place is also fundamentally shaped by human activity. Forms of government, religious traditions, linguistic groups, norms relating to gender roles, architecture, artistic expression, ways of interacting with other people, levels of wealth and inequalities of wealth, the types of work that people do, the shops, restaurants, bars, and cafes that exist and the things that they sell – these are all human activities that give rise to unique characteristics of particular places, and they may vary greatly between places.

Place-based characteristics help us to understand the politics of water bottling discussed in Section 1.2. For example, the small township of Centre Wellington (population 30,000) in Ontario, Canada, was the site of a controversy over water extraction by Nestlé (see Figure 1.6). In 2016, the township sought to buy a spring water well on a five hectare site in order to secure water supplies for a growing population. The township was outbid by Nestlé, which bought the site as a resource for future business growth to supplement its existing well in Aberfoyle. This and other wells in the region were protested vociferously by a group called Wellington Water Watchers, dedicated to the protection and restoration of local drinking water (wellingtonwaterwatchers.ca).

It would be impossible to understand the degree of opposition that develops in such locations without examining their distinctive environmental, political, cultural, and economic circumstances. A few key place-based features can be highlighted:

- The groundwater sources used by Nestlé are in the Guelph area. This is an area of rapid population growth, including outmigration from nearby Toronto. Availability of groundwater to supply a larger population in the future is a major concern.
- Much of the area is still rural and so there are many households using wells for their domestic water supply, and farms using water for crops. Extraction for

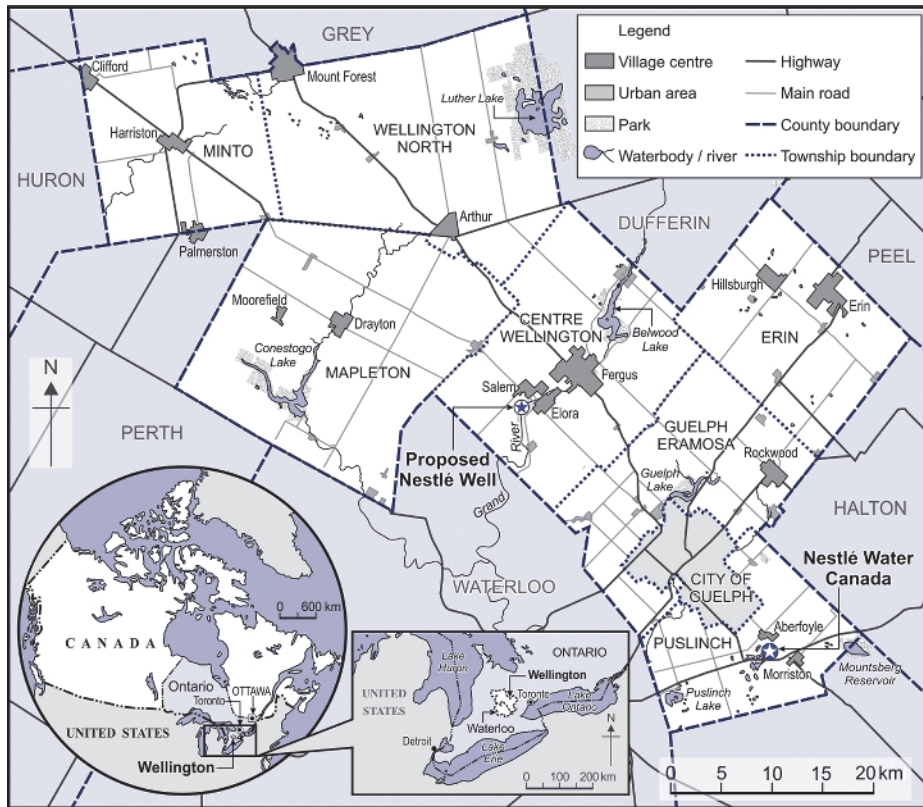


Figure 1.6 Centre Wellington and Wellington County, in Ontario, Canada

bottled water is seen by these groups as a competing claim on a finite resource.

- Much of Ontario, including this area, is the traditional land of Indigenous groups (known as First Nations in Canada) who hold water to be sacred and who have a constitutional right to be consulted in relation to resource extraction projects.
- The local economy is diverse and tied into continental and global high-tech industry, auto manufacturing, and agricultural production. It is not dependent on attracting the modest employment promised by water bottling plants.
- The activist organization (Wellington Water Watchers) was created and sustained because a group of local individuals had the time, resources, education, and connections to pursue a campaign against a large multinational corporation.
- A system of representative democracy exists at both local and provincial levels in which motivated activists can make their voices heard and influence elected officials.

Ultimately, all of these place-based features (and probably many more) contributed to the two-year ban on new permits for bottled water extraction that was

enacted by the government of Ontario in January 2017 (Kassam 2016). The broader point is that it is essential to understand this unique mix of local characteristics in order to explain why a particular economic activity might exist, and why it might be opposed. A geographical approach to examining economic activities promotes exactly this kind of place-based understanding.

While places are unique, they are definitely not created through purely local processes. Every feature of Wellington County in Ontario noted above is a product of a relationship or connectivity with larger processes. Population growth is a product of outmigration from Toronto; the local farming economy is supplying commodity markets at regional, national, and global scales; First Nations are survivors of European colonization and settlement; locally diverse employment might involve commuting to Toronto's financial centre or working in the high technology hub of nearby Waterloo, both deeply integrated into the global economic system; the activism of local groups is explicitly linked to similar struggles elsewhere (the webpage of Wellington Water Watchers contains links to campaigns against Nestlé in Oregon and Pennsylvania in the United States); and, finally, Nestlé itself is the world's largest food and beverage transnational corporation with operations in 189 countries. In all of these ways, then, the place-based characteristics of a small township in Canada are the product of relationships with other places. We therefore need to understand places as created by processes that are external as much as processes that are internal and 'local'. Places, then, can be seen as the 'coming together' of flows across space to create unique intersections in particular locations. This conception of place is what Doreen Massey (1991) called a 'global sense of place'.

It is, however, important to remember that places are not just the outcome of contemporary connections. They are also the result of historical place-making from different periods of time, each layered on top of the period before. This historical layering process is another reason why no two places are alike. We cannot understand the grandeur and wealth of London without acknowledging its role at the heart of a global empire over the last few centuries. Nor can we fully understand Manila or Mumbai without thinking about the ways in which centuries of colonialism shaped their societies, cultures, and economies. Even the most remote village is shaped by these historical connections, and their contemporary consequences, in a most profound way.

Understanding the uniqueness of places is, therefore, complicated. It requires us to think about both historical and contemporary processes and how they have shaped a place, and how the characteristics of a place in the past shaped (without actually *determining*) what it could become in the future. It also requires us to examine not just what the place itself is like, but also the part it plays in larger structures and processes – studying a place is not therefore about studying *just* that place. Furthermore, studying places is about recognizing how diverse factors, from the natural environment, to cultural practices, to economic activities, to political processes are all interconnected. This encounter with the complexities of a specific place is, in many ways, a quintessentially geographical undertaking.

It is also worth pointing out that this geographical approach to the world requires a somewhat different mindset than we might find in other disciplines, and especially Economics (a difference that we will highlight in Chapter 2). Taking a geographical approach to patterns of economic activity requires us to engage with all the complexity and messiness of the real-world places in which we live. This does not mean neglecting the wider forces that shape these activities, but it does mean that we are seeking to understand them as uniquely manifested in real and lived places, rather than as ways of deriving model ‘laws’ or principles. While economists are often seeking universally applicable generalizations (a ‘science’ of economic processes), economic geographers are usually going in a different direction – trying to understand why certain things happen in specific places in the context of all the richness and complexity of that place.

1.5 Connecting Across Space Through Networks

Our next type of spatiality has (again) already been implied in our discussions so far. We could not really discuss the patterning and unevenness of economic landscapes without thinking about how space is connected together. Nor could we understand the distinctiveness of places without thinking about how places are made (and remade) through their relationships with other places. This idea of connection across space, and the creation of networks, is our third form of spatiality. In this section, we will briefly highlight three different types of connection that become apparent in our bottled water case study:

- Linkages created by firms and production networks.
- Waste disposal networks and environmental processes.
- Wider linkages forged by a capitalist world system.

Corporate and Production Networks

The most obvious way in which we need to pay attention to connections in the economic world is through the corporate systems that knit together and organize networks in the global economy. We have already noted that the global bottled water industry has a few dominant players – PepsiCo, Coca-Cola, Nestlé, and Danone (see Box 1.1). But simply identifying these firms and assuming they are all-powerful global capitalists does not tell us very much. We can look much more closely at the ways in which such transnational corporations are structured. In the case of Nestlé, for example, the company is headquartered in Switzerland. About one-third of its shareholders are Swiss and one-third are American (most of the rest are based in Germany, Belgium, the United Kingdom, Canada, and Japan). The majority of Nestlé’s subsidiaries are managed according to global regions, but the bottled water division is run as a global business. Nestlé Waters is

the world's largest producer of bottled water, although this only amounts to 11 per cent of global sales – thus, the company is a long way from being totally dominant. Furthermore, while 18.4 per cent of its sales in 2016 came from international brands like Perrier and San Pellegrino, and 25.7 per cent came from Nestlé's own brands (especially Pure Life), more than half (50.4 per cent) came from local brands that the company owns (Nestlé 2018). This has implications for how this particular business produces a geography of wealth. If sales are largely based on the extraction of a local commodity (water) and profits are transferred to a global headquarters and paid out as dividends to shareholders in North America and Europe, then ultimately its structure represents a redistribution of global wealth, and part of the process that creates the uneven patterns of development noted in Section 1.3.

The distribution of benefits from a transnational corporation is also determined by where they pay taxes. Companies with global operations will use internal accounting mechanisms (called 'transfer pricing') to ensure that profits are declared in the lowest possible tax regime. FIJI Water provides an example of this:

the Fijian subsidiary of FIJI Water sells a 12 litre carton of water for \$4 US dollars to its parent company based in the United States, which then sells the water to distributors for \$13 US dollars. The carton retails in the United States for anywhere from \$20–\$28 US dollars. This arrangement ensures that the Fijian subsidiary generates low profits and largely avoids Fiji's 28 per cent corporate tax rate (Dornan 2010).

Furthermore, companies can also locate ownership of their business in a tax haven to ensure that their tax bill is as low as legally possible. Again, FIJI Water provides an example. Although its water comes from Fiji, and its headquarters is in California, the company is owned by an entity registered in Luxembourg; some of its assets have been transferred to companies in Switzerland; and it has trademarked the word 'FIJI' in the Cayman Islands (Lenzer 2010). The phenomenon of global finance and offshore tax havens will be discussed further in Chapter 8.

The bottled water business is, however, a system of relationships that goes far beyond the companies that create and market the product. A firm like Nestlé or PepsiCo sits within a much larger network of actors and institutions. A major part of the commodity they produce is the plastic water bottle itself. In fact, the bottle, cap, and label are, by far, the largest proportion of the costs involved in production (Bhushan 2006). This ties the bottled water business into an entirely different network of producers in the petrochemical industry, which may have a very different geography. If we look at the PET resin used to make plastic bottles, for example, the world's largest producer, Indorama, is based in Thailand. In 2015, Indorama produced 4.4 million tonnes of PET resin (16 per cent of the global total). In that production network, the plastic bottle is the end product

and is based on oil extraction, refining, shipping, commodity trading, PET resin production, and bottle molding. In some cases, plant material or recycled plastic may form part of the bottle, but most bottles are still the result of the petrochemical industry.

The network of production gets wider still when we start to consider the other players involved. The industry has other suppliers of goods and services such as manufacturers of filtration, purification, and bottling equipment, bankers who lend capital, providers of insurance and legal services, transportation companies, advertising agencies, industry associations, retailers, management consultants and research companies, and many more. Furthermore, as we have seen in Section 1.2, there are others involved in the sector as well. Governments at all levels (from local governments to international organizations like the European Union) play a key role in establishing and enforcing the rules of water extraction, product safety, recycling, and other issues. Labour unions in any of the sectors mentioned above may bargain to determine wages and working conditions. Activist groups seeking to protect their local environments can have a significant impact on the activities of water bottlers. Even schools, colleges, and universities that ban bottled water on their campuses (or conduct research on the sector) are having an impact on the sales and reputations of bottled water producers.

Overall, then, bottled water is a product that results from a complex network of relationships that connect different economic activities across space. In this book, we therefore pay attention to the structure and operations of the transnational corporations that drive such a network (Chapter 5), but also the global structure of production networks (Chapter 4).

Waste Networks and Environmental Processes

So far, we have focused on the network that has the bottled water producer at its centre. Once the plastic bottle is discarded, however, it enters a whole other set of networks that connect places across space (see Figure 1.7). In some cases this might be quite local, as plastic waste is transported to a local recycling facility or landfill. But waste is also a global industry in its own right. This was dramatically highlighted in January 2018 when China implemented a ban on imports of certain waste materials, including PET bottles, mixed paper, and textiles. The Chinese government declared that such waste materials were too often mixed with unrecyclable and even hazardous materials. It was labelled ‘*yang laji*’ or ‘foreign garbage’. The country had previously been the world’s major destination for recyclable plastic waste, especially from the Global North. Ireland, for example, had been sending 95 per cent of its plastic waste to China. In Europe as a whole, 50 per cent of collected and sorted plastic were being exported in 2016, and 85 per cent of those materials were going to China. China’s sudden ban left many countries scrambling to find new places to dump their waste, or exploring new policies to reduce the use of plastics (AFP 2018). This illustrates the extent



Figure 1.7 Plastic bottles, sorted and compressed into bales and ready for recycling

Source: reproduced with permission of Meinrad Riedo/Getty Images.

to which it is not just manufactured products that are embedded in networks that connect global space but also the waste we produce as well. Increasing recognition of the impacts of our consumption practices has prompted alternative forms of consumption that seek to be environmentally sustainable and ethical (see Chapter 14).

The issue of plastic waste also reminds us of another form of connectivity that binds global space together: environmental processes. One example is found in the accumulation of plastic waste in the world's oceans. A United Nations report has suggested that there could be more plastic waste (mainly from single-use items such as bags and bottles) in the world's oceans than fish by 2050 (United Nations 2017). Already, we know that plastic waste is accumulating in food chains that start in rivers and oceans. Fish, shellfish, and seabirds contaminated with plastic have been found across the globe, from Europe, to the Americas, to Asia (Smillie 2017) (see Figure 1.8). In this way, the waste produced by the global bottled water industry is circulating back into global seafood production: two forms of economic activity that, at first glance, seem unconnected, are therefore drawn together through the connectedness of the global environment.

Another, less direct, form of connectivity is to be found in the processes of global climate change. The energy use and carbon emissions involved in the production, transportation, and cooling of bottled water are significant. As noted earlier, they certainly far exceed the energy use involved in delivering piped tap



Figure 1.8 A juvenile albatross sits amid piles of discarded trash that floated ashore including bottles, fishing floats, and even televisions in otherwise pristine Midway Atoll
Source: reproduced with permission of Rick Loomis/Los Angeles Times via Getty Images.

water. In this way, the bottled water industry does its part to contribute negatively to global climate change. This means that those places with higher per capita levels of bottled water consumption (Mexico, Thailand, and Italy) are contributing disproportionately more to global climate change than places with lower per capita levels (India and China) – see Table 1.1. These are some of the complex geographies of global climate change that we will address in Chapter 11.

The impacts of climate change are also geographically complex and they affect the bottled water industry in a variety of ways. In Section 1.2, we noted the controversy over the Starbucks brand of Ethos bottled water during the Californian drought. The water shortages at that time (in 2015) spread across the state, which saw its highest temperatures in 120 years of record-keeping. Climate scientists estimated that climate change made the drought 15–20 per cent worse than natural climate variability. But water shortages can also be a boon for the bottled water industry. In 2018, the city of Cape Town in South Africa declared that it was approaching ‘day zero’ when its water reservoirs would be so low that municipal supplies would be cut off. Cape Town’s water shortage had a variety of causes, but a long run trend towards drier, hotter weather was a critical factor. The announcement of an impending ‘day zero’ led to huge demand for bottled water among wealthier residents and a spike in prices. Supermarkets had to start rationing bottled water purchases and governments were urged to regulate prices (Watts 2018).

The obvious, but often incorrect, assumption is that the bottled water industry exacerbates water shortages through its water extraction practices. In fact, the total extraction of water is very small relative to other uses (such as agriculture). The larger concern is the unnecessary energy used in the industry, which is tied to overall carbon emissions and climate change. Thus, it is through the global climate system that we can see the connections between bottled water consumption in one place and water shortages in another.

A Global Capitalist System

There is a third way in which we can see bottled water as part of a larger, space-connecting system. This is through the system of global capitalism. We will address the geographies of capitalism in more detail in Chapter 3, but there are a few features that are worth pointing out in relation to bottled water. First, capitalism is a system that is fundamentally based on the ownership and use of private property (whether it is land, water, factories, or other assets) to generate profit for the owners of that property. Where an opportunity exists to generate profit by making a public resource (like groundwater) privately owned, then the system will move towards that opportunity. If there is no profit to be made from tap water that is publically available, then the system will find a commodity that can be privately sold (Jaffee and Newman 2013). This is the internal logic of a capitalist system.

Second, in its search for profit, capitalism is inherently innovative in terms of the commodities offered for sale and the processes through which they are made. We saw this in the introduction of PET bottles in the 1990s. We also see it in the creation of new ‘premium’ water products, with impressive claims about their mineral concentrations, vitamin content, or flavour infusions. After visiting a gym in North London, and noting the dizzying array of water products on offer, a British journalist had this to say about bottled water:

Right now, the global bottled water industry is in one of those strange and energetic boom phases where, every week, it seems, a new product finds its way on to the shelves. Not just bland still or sparkling, but some entirely new definition of the element. It is a case of capitalism at its most hyperactive and brazenly inventive: take a freely available substance, dress it up in countless different costumes and then sell it as something new and capable of transforming body, mind, soul (Elmhirst 2016).

This quote nicely captures the inventiveness and dynamism of the capitalist system.

Third, capitalism will always seek out new markets to sell commodities, new sources of raw materials, and less expensive or more efficient labour. If one

market becomes less profitable or more static, then growth must be found by selling elsewhere. If a raw material or any input to the production process can be found less expensively elsewhere, then it will be used. If local labour becomes too expensive, then there will be pressure to either relocate production or to bring in cheaper labour – perhaps foreign migrant workers. This is the logic of survival and profit-maximizing that the system imposes on its participants. In the case of bottled water, not all of these options are available – the product itself is expensive to transport, so moving to a new location of cheap labour or cheaper water is usually not an option. Furthermore, for some products, such as Perrier or FIJI, production is tied to a particular place because of branding. But if bottled water sales are stagnant in North America and Europe because of increasing environmental awareness, then companies will certainly seek to expand into new markets such as India, China, Southeast Asia, Africa, and Latin America. The global footprint of the leading bottled water producers is an outcome of this urge to find new spaces for growth and profit. The bottled water producers identified in Box 1.1 are, therefore, creatures of a capitalist system. The global space in which they operate is, in a sense, connected together as the common terrain of capitalism.

1.6 Defining and Controlling Space Through Territory

Our final conception of space is *territory*. We have already noted that space can be patterned and uneven, that places need to be understood in their unique distinctiveness, and that connections across space can take various forms. One aspect of space that is not quite captured in these other formulations is the way in which it can be carved up and controlled. A segment of space can be bounded and defined in some way and then jurisdiction can be exercised. This combination of demarcation and power creates what we call territory. The primary form of territorial power is exercised by governments, who can exert power in a variety of ways within their jurisdictions. But governments are not the only organizations that have some degree of territorial power. A campus ban on bottled water is an example of territorial power exercised by a university administration. A shopping mall management company that decides not to provide drinking water fountains in order to enhance demand for retailers of bottled drinks is also exercising territorial power.

In this section we will highlight two ways in which territorial power can be exercised and show how this idea of space helps us to make sense of the bottled water business. First, we look at how territorial power creates borders that control flows of commodities, people, money, and information. Second, we will highlight some of the ways in which territorial power is used to shape and manage economic activities within a set of spatial boundaries.

Controlling Flows

The power to control economic flows into and out of a territory sits most clearly with national governments, which have the power to police, guard, and enforce the boundaries of their territory. This means that they can control what moves across those boundaries, including workers, products, and money. Even information can be controlled to some extent, with some governments banning the printed or online content of certain newspapers and magazines.

In the case of bottled water, we have already discussed the assertion of territorial sovereignty by the Chinese government in 2018, resulting in the banning of certain kinds of waste from entering the country. Territorial control over borders might also be imposed through duties or tariffs imposed on imported goods. Imported mineral water, for example, faces no tariffs when imported to Australia or Canada, a 10 per cent duty in China, and a 30 per cent duty in India.

A government's control over border flows also includes the movement of people. If Danone wishes to assign a manager from their headquarters in France to one of their subsidiaries around the world, that person's ability to work will be determined by the host country. Most countries are quite open to foreign managers of this kind as they recognize their presence as necessary to attract investment. The conditions attached to migrant workers lower down the workforce hierarchy, however, are much more stringent. While water bottling plants themselves employ relatively few people, in many countries around the world migrant labour is extensively employed in construction, transportation, and retailing, and is therefore present at many points in the bottled water production network. Such workers are closely monitored and live with fewer rights than permanent residents or citizens in the countries where they work (see Chapter 6).

Shaping and Regulating the Economy

A second form of territorial control involves the power to shape and regulate certain processes within those boundaries. In the case of national states, this power is exercised in many ways – from education and training programs that are run by governments; to laws concerning property, contracts, and employment relations; to welfare, unemployment benefits, and tax policy. In the case of bottled water, governments impose and enforce environmental and food safety standards. Governments also 'own' the natural resource that is been extracted when companies draw groundwater for bottling. A state can therefore set the price of that resource. The case (noted earlier) of the Canadian province of Ontario increasing the fee that it charges to water users is an example, but also a reminder that power over a particular issue within a territory may be exercised by a subnational unit rather than the national government. Moving to an even smaller subnational unit, tap water is often the responsibility of municipal governments, although in some places separate public water utilities or private supply companies exist. Municipal

water supplies are the raw materials for brands such as Dasani and Aquafina in North America. In those cases, they would have a supply agreement with a local city government and its water utility.

The role of governments goes still further. Governments are often major buyers of commodities produced within their jurisdictions. In China, for example, the government-owned China Railway Corporation was a major customer for Tibet 5100 – a company that bottles glacial meltwater from an altitude of 5100m in Tibet. From 2011 to 2015, the company sold 600 million bottles to the government railway corporation, which then gave free water to its passengers (Liu 2015). In some cases, governments may even own water bottling enterprises. One of the leading bottled water brands in China is C'estbon, produced by the state-owned China Resources company. In Jamaica, the National Water Commission has also discussed establishing its own bottled water brand. Perhaps uniquely for a head of state, Donald Trump has his own brand of bottled water, 'Trump Natural Spring Water', which is served at the President's hotels, restaurants, and golf courses around the world. Governments may thus exercise their territorial power not just through regulating economic activities but also as full participants in certain sectors. We will discuss these and other powers of the state in Chapter 9.

While the ways in which territorial control is exercised will vary across different jurisdictions, it may also shift over time. When a country signs on to a free trade agreement, for example, it is surrendering some of its territorial power – or, perhaps more accurately, shifting it to another scale (see Box 1.2). Thus, the North American Free Trade Agreement between the United States, Canada, and Mexico removes any tariffs on bottled water between the three countries. Meanwhile, membership of the World Trade Organization requires that the three countries give the same tariff-free access to all other importers. Such agreements also often require that the same rights are given to international investors and to local water companies. This is why, in the example described earlier, a multinational such as Nestlé can operate in Canada with the same rights as any Canadian water bottling firm. Finally, in the case of the most deeply integrated free trade zones, such as the European Union, there will be uniform environmental and other regulations across the whole area. In these ways, then, the territorial power of national governments to control their economies is partially surrendered. Chapter 10 develops this point more comprehensively, as we examine the role of international institutions in shaping economic processes.

The issue of local control is often at the core of controversies over water extraction. In the case of the small village of McCloud, California, a movement developed to oppose a proposal by Nestlé to extract spring water for a large bottling plant. The dispute continued from 2003 until the company dropped the proposal in 2009. The key issue at stake for many residents and activists was local control over water resources, and a passionate belief that they should stay under public ownership and management (Jaffee and Newman 2013). There is a strong sense in many such controversies that water is a fundamental part of a

FURTHER THINKING

Box 1.2 Scale

In this chapter, we have addressed different ways of understanding space, but along the way our discussion has ranged from global corporations to tiny villages. In other words, we have been integrating many different *scales*. It is important to think explicitly about what scale means and how it might be important. At least eight scales have been evident in this chapter:

- A *global* scale allows us to understand the environmental processes that link space together, the economic inequities that shape access to safe water, and the scale at which major water bottling corporations operate.
- The *macro-regional* scale usually refers to a group of countries. We have noted, for example, how the European Union shapes environmental, labour, trade, and other issues among its member states.
- A *national* scale is where many aspects of territorial power are exercised but we have also used this scale to study inequality between countries because economic statistics are usually collected nationally.
- The *regional* scale may represent a territorial unit of control, for example, in the case of the Canadian province of Ontario charging water extraction fees.
- The *urban* scale is where many water utilities are based, as in the case of Cape Town. Water is a difficult commodity to transport and so tap water delivery is usually organized at the scale of the city.
- The *local* scale is often where social and environmental movements mobilize opposition to water extraction and bottling. Bottled water bans may also exist locally, for example, on university campuses.
- The *workplace* and the *home* are scales where many of the microprocesses of everyday life are played out. They are the most likely starting points for the global networks of recycled (or discarded) plastic bottles.
- The *body* is a site for understanding increasing demand for bottled water based on concerns about health and fitness. But also, the embodied workers employed in the bottled water industry have gendered, racialized, and other identities that affect their experiences of workplaces and labour markets (an issue taken up in Chapter 13).

These scales are useful frameworks for thinking about economic processes, but there are three further important points to remember. First, scales are *not hierarchical*. It is tempting to assume that larger scales determine what goes on at smaller scales. The economic world is, in fact, more complicated than this. As mentioned in Section 1.6, a global firm like Nestlé can be

stopped by determined local opponents in the small hamlet like McCloud, California. A second point is that economic processes work at *multiple scales simultaneously*. Trying to understand a set of processes at one scale alone will inevitably produce a very incomplete picture of what is happening. The global sales of FIJI water need to be understood through the status enhancement of consuming such a product at the scale of the body, the purity associated with a local source of water on a Pacific island, and a global corporate network that stretches to the firm's headquarters in Los Angeles. The purpose of geographical analysis is not, therefore, to pick the 'correct' scale to focus upon, but rather to keep multiple scales in mind at the same time. Finally, we need to avoid the temptation to see scales as somehow naturally occurring. Each of the scales listed above is humanly created in two senses: on the one hand, a scale such as 'the national' or 'the urban' refers to entities that we have collectively created – they are not naturally occurring phenomena; and, on the other hand, each scale is actively constructed and reconstructed with ongoing changes in our economies and societies – a process called the 'production of scale'. The very possibility of global firms marketing bottled water, for example, is a product of changes in the last few decades that have made possible flows of people, investment, commodities, and information across borders. The scale of our capitalist economy has thus been reworked, and in this sense, scale is constantly being produced.

territory. To lose control of that resource (for example, to a private water bottling corporation, with both water and profits leaving the locality) is to surrender a key part of territorial power that should rightfully reside locally. To fully understand controversies over water bottling it is therefore necessary to understand contestations over territorial power, and how it is exercised at different scales. Box 1.2 elaborates on the concept of scale, which cuts across all of the spatialities discussed in this chapter.

1.7 Summary

There are many popular conceptions about what geographers do. If you are a student of Geography, you will have heard most of them. Geography, it is often assumed, is about maps (knowing where things are located, and how borders are configured), the natural environment (rivers, mountains, volcanoes, glaciers, etc.), and places (going there for field trips, knowing capital cities, etc.). This chapter has shown that these preconceptions of Geography hold elements of truth, but in fact geographical analysis is about much more.

A cornerstone of geographical thinking will always be to ask: Why is an economic phenomenon happening in a particular *location*; how and why it is patterned unevenly across space; and how is that spatial unevenness changing over time? We have tried to capture these and other geographical questions in Figure 1.9. The small triangles, squares, and circles represent economic phenomena – they could be anything from the location of a water bottling factory to the average household income in an area. Why they are located in a particular place, and why they are uneven across space become fundamental questions to ask.

A second key concept is *place*. Places are fashioned out of every possible dimension that differentiates space: the natural environment, landscape, cultural life, political processes, types of work, the things that get produced, consumption patterns, and so on. While place is about local distinctiveness, it is also concerned with the connections and relations creating that place. A contemporary place is also a product of its past, as previous characteristics are layered on top of one another and serve to shape the place as it is now. When studying an economic process in a particular location, then, we will always want to ask: what are the distinctive and unique attributes (both environmental and social) of this place, and how did they come about over time? And, how is this place shaped by its connections with other places? In Figure 1.9, the uniqueness and historically shaped character of places is depicted with stripes – suggesting both historical layering over time, but also giving the impression of a unique ‘bar code’ for any given place.

Our third key geographical approach is to understand how connections across space are created and maintained. These might be corporate connections forged

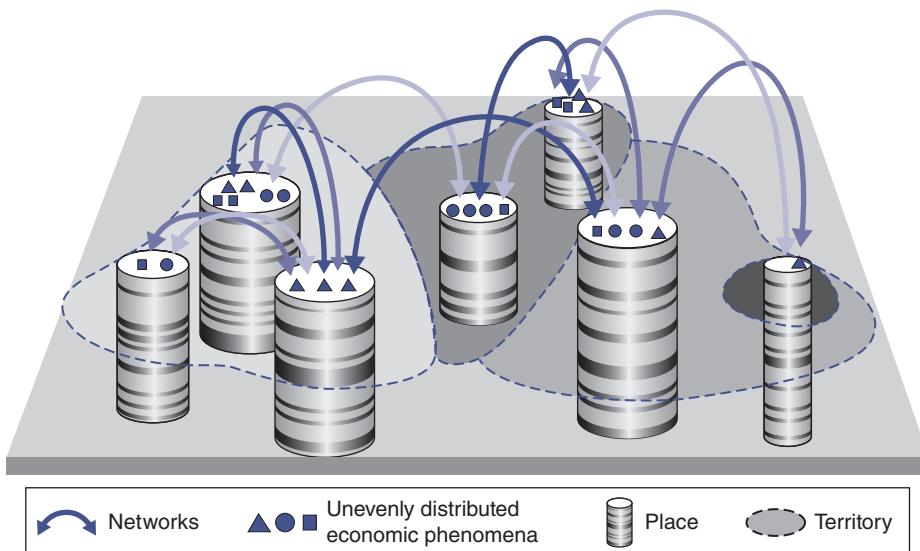


Figure 1.9 Key geographical concepts – uneven patterns, distinctive places, connecting networks, and territorial power

through transnational firms; they might be the wider *network* of connections that contribute to the production of any commodity or service; or, they might be the relationships formed through operating in a wider capitalist system. But it is not just firms and commodities that create connections. The movement of migrants, the sharing of data, and the connections forged within the global environmental system are also parts of this network of connections across space. In Figure 1.9, therefore, places are nodes in a network of relations.

The lines on a map that define the *territories* controlled by states or other entities represent a fourth key element of geographical analysis. But we are less interested in where exactly a border is located than what its effects might be on economic activities within it, or economic flows across it. It is therefore the carving up of space into controlled or managed units that makes territory an important concept. As economic geographers we will always want to ask: How is space being defined, bounded, and controlled; and, how is this process contested? The zones shaded in Figure 1.9 indicate how territory may ‘colour in’ space in this way.

These four dimensions of space will inform each of the chapters in this book. Together they represent a quite distinctive approach to economic life – one that is grounded in the landscapes where we live and work, asking how and why they vary, and how they are connected together. In the next chapter, we suggest that such a geographical approach differs from the dominant perspective on economic processes, which is provided by the field of Economics.

Notes on the references

- Accessible and well-researched studies of the rise of bottled water are provided by Clarke (2007), Gleick (2010), and Hawkins et al. (2015).
- There are various ways of thinking about spatiality, and our typology here is only one of several possibilities. Eric Sheppard (2016) discusses place, scale, networks/connectivity, and socio-spatial positionality. Peter Jackson (2006) uses space and place, scale and connection, proximity and distance, and relational thinking. Bob Jessop et al. (2008) use territory, place, scale, and networks.
- For further introductions to the field of Economic Geography and its scope, see, for example: MacKinnon and Cumbers (2019), Hayter and Patchell (2016), and Barnes and Christophers (2018).

Sample essay questions

- Why is bottled water a controversial commodity?
- Construct an argument in favour of allowing a local water resource to be bottled and sold.

- Explain the concept of (spatial unevenness/place/networked connections across space/territory) and show how it can be illustrated using the case of bottled water.
- Why is it important to understand the concept of scale when we discuss spatiality in economic geography?

Resources for further learning

- Further information about the major multinational bottled water producers can be found on their websites: Nestlé, <https://www.nestle-waters.com/get-to-know-us/key-figures>; Danone, <http://www.danone.com/en/for-all/our-4-business-lines/waters/strategy-key-figures>; Coca-Cola, <http://www.coca-colacompany.com/stories/water>; and PepsiCo, <http://www.aquafina.com/en-US/sustainability.html>.
- Other industry association websites include: <http://www.bottledwatermatters.org>, www.bottledwater.org, <http://www.efbw.org>, and www.naturalhydrationcouncil.org.uk.
- Websites and organizations aligned against bottled water include: www.banthebottle.net, www.polarisinstitute.org, and www.foodandwaterwatch.org.
- The Story of Stuff website has a short video about bottled water: <https://storyofstuff.org/movies/story-of-bottled-water>. The Story of Stuff also has two short documentaries about resistance to Nestlé water bottling operations in California (<https://storyofstuff.org/movies/nestle>) and Oregon (<https://storyofstuff.org/movies/our-water-our-future>).
- Albatross is a documentary film released in 2018 that highlights the impacts of plastic pollution in the world's oceans: www.albatrossthefilm.com.
- The Guardian newspaper has an extensive themed collection on the issue of global plastic production and disposal: <https://www.theguardian.com/environment/plastic>.

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