

Borders, Differences, and the Law of Distance

THE LAST CHAPTER examined the cross-border integration of markets and concluded that the world economy is still only semiglobalized. This chapter digs into the barriers that underlie observed levels of cross-border integration—the borders, differences, and distances that still separate countries in our semiglobalized World 3.0. This chapter identifies the barriers that would have to be removed or reduced to increase integration—a possibility highlighted by the diagnosis of semiglobalization in chapter 2 and pursued further in chapter 4. It also indicates that instead of the Heideggerian vision of a world in which “everything is equally far and equally near,” countries are better thought of as located in (and occupying) physical and virtual space at very different distances from one another.¹

This more realistic vision suggests a distinctive geographic structure for World 3.0, in which both borders *and* distance are important. By contrast, World 1.0 presupposes that only borders matter; it buckets countries into “home” and “abroad” even when speaking of international relations. And in World 2.0, neither borders nor distance are supposed to matter. The geography I define for World 3.0, in which the intensity of interactions is affected not only by borders but also by

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distance—the “law” of distance, as I refer to it—will prove particularly helpful later in the book.

Note that this chapter’s diagnosis is linked to the previous one’s in the sense that semiglobalization is *necessary* for interesting variations in distance. With zero cross-border integration, all foreign countries would be prohibitively distant; with complete cross-border integration, all countries would be cheek by jowl. But semiglobalization isn’t *sufficient* to establish that it is interesting to organize our thinking about the world out there in distance-dependent terms. That is the broader task at which this chapter makes a start.

We begin by looking at the case of a particular border, between the United States and Canada, that shouldn’t, as national borders go, matter much. But it turns out to be a huge impediment to merchandise flows. To understand why, we go micro and look at a specific business, a small company named Ganong, that exports jelly beans from Canada to the United States. The cross-country differences flagged by this case and the earlier example of Google help introduce a research-based framework I’ve created for understanding distance. I call it the “CAGE” distance framework to refer to the cultural, administrative, geographic, and economic differences or distances between countries.

Studies using subsets of the CAGE factors do a good-to-great job of explaining patterns not just in trade and FDI flows, but in people, financial, and informational flows as well. Estimates drawn from such studies, of which hundreds exist, help us appreciate how much farther apart the typical country pair is on these dimensions than the United States and Canada, and how much that should be expected to matter. This chapter ends with a discussion of the broader significance of this distance-based geographic reconceptualization. Chapter 4 returns to the specifics about what to do about the CAGE-related barriers that continue to constrain cross-border integration.

The Mystery of the Missing Trade

The U.S.-Canadian border is the world’s longest undefended border. Trade across it accounts for the world’s largest bilateral trading relationship, still

larger than that between the United States and China. Two-way trade between the United States and Canada amounted to nearly \$750 billion in 2008 before falling to \$600 billion in 2009, thanks largely to the decline in energy prices and weakness in the auto sector; in both areas, Canada is the United States' largest foreign supplier. So important is this trading relationship for Canada that the Canadian government regards several industries as more susceptible to U.S. economic conditions than to domestic ones.² Thus, Canada's \$100 billion drop in exports to the United States between 2008 and 2009 was three times as large as the decline in Canada's GDP during that period.

All this suggests lots of trade, but we shouldn't just jump to the conclusion that the border doesn't matter. In fact, economists who've looked at U.S.-Canada trade in recent years haven't puzzled over why it is so large; rather, they've wondered *why it isn't nearly as large as one would expect if the border didn't matter*. There has been a spate of work on "the mystery of the missing trade," since the original finding that in 1988, when the United States and Canada signed a free trade agreement, merchandise trade between Canada's different provinces was *twenty-two times as intense* as their trade with the United States.

The 1988 free trade agreement did reduce the "home-bias multiple," as economists call it, by the mid-1990s, but only to twelve (and with the multiple remaining stuck at thirty to forty in the case of services).³ It is currently estimated to be between five and ten—lower than before but still significantly greater than the level of one that would correspond to zero home bias.⁴ Corroboration of significant border effects comes from the price differences between the United States and Canada. As so many border dwellers know, there's a reason to go on international shopping trips (although this type of "suitcase trade" amounts to only a small percentage of total trade, and is therefore insufficient to eliminate price differentials).⁵

How do other borders stack up to this one? It's hard to tell, since very few countries maintain data on within-country trade of the sort available for Canada. However, we can get a sense of merchandise trade across regions within a country by examining regional transportation flows.⁶ One study that does so concludes that German *länder*, or statestraded

four to six times as much with each other as with other EU countries in 2002, and that the corresponding home bias multiple for the French regions was about fifteen.⁷ More than three decades after the EU eliminated all formal trade barriers, such as tariffs and quotas, between member states, the German and French borders still matter a great deal.

If borders still matter so much between neighbors, they cast an even bigger shadow on trade between countries farther away from each other. My analysis of Spanish regions' merchandise trade with other OECD countries over 1995–2005 found a home bias multiple ranging from fifteen with Portugal to 150 for Japan!⁸ As we know from other studies, Spain hasn't integrated with world markets as well as Germany or even France, and these numbers bear that out.⁹ And the variation in the home bias multiple reminds us that a border effect is a "bilateral effect"—that is, it depends on which country pair one is talking about—rather than a "unilateral effect," which depends on the attributes of just one country.

For even more evidence that national borders impede trade, we can look to situations where new borders have arisen or old ones have gone away. In 1993, when the former Czechoslovakia broke into the Czech Republic and Slovakia, the two governments took significant measures to preserve open trading relations, including a customs union, a temporary payment mechanism to deal with delinked currencies, and an agreement stipulating free movement of labor. Yet, trade intensity between the two new countries fell from forty times the "normal" level of trade with other countries in 1991¹⁰ to ten times by 1995.¹¹

Meanwhile, Germany's experience illustrates the effects of removing national borders. In the five years that followed the reunification of the former East and West Germany in 1990, trade between the two shot up sixfold, and the share of intra-German trade in their overall trade grew fourfold.¹² These gains reflected large investments intended to facilitate integration, including spending on physical infrastructure like rail lines and highways, and the East's rapid development as a result.

Even more interesting than the rapid increase in trade, however, are estimates that it will take *decades* before effects of the former East-West border disappear.¹³ Erection of a new border can cause trade to collapse

almost overnight, as in the Czechoslovak example, but removing a border has a much slower economic impact. This makes sense when you think about the relationships that accrete over time between buyers and sellers, the investment in familiar brands, the knowledge that locals have with local markets, tastes, preferences, and, of course, connective infrastructure. Removal of a barrier doesn't put outsiders on equal footing with locals—not for decades, at least.

Of course, there are also studies focused on emerging markets. Although Brazil opened up to more international trade during the 1990s, Brazilian states still traded an estimated twenty-seven times more with each other than with foreign countries in 1999.¹⁴ China's estimated home bias in the late 1990s was also in the twenties.¹⁵ This figure would have been higher if Chinese provinces hadn't become significantly less integrated with each other: between 1987 and 1997, provincial border effects are estimated to have more than doubled.

The effects of borders *between* states or regions within the same country in limiting trade seem particularly large in the BRIC countries (Brazil, Russia, India, and China) because of their size, poor infrastructure (especially in the hinterlands), and administrative barriers to internal trade.¹⁶ In general, though, the effects of internal borders are an order of magnitude smaller than those of international borders. Thus, in 1999, Brazilian states “traded” internally more than ten times as intensely as with other Brazilian states but 280 times as intensely as with foreign countries; for Chinese provinces in 1997, those multiples were estimated at twenty-seven and more than 400 times. The point is not that internal trade flows or barriers to them are unimportant: in large countries, in particular, internal trade is often significantly larger overall than international trade and therefore even relatively small impediments to it can matter a great deal.¹⁷ Rather, the point is that if we want to “solve” the mystery of the missing trade, we ought to look at national borders, since that is where the really large drop-offs in trade are observed, not at state or regional borders. In other words, World 0.0, with its primary focus on the subnational level, turns out to be even less realistic a worldview than World 1.0.

From Canada with Candy

Let's dig deeper into the mystery of the missing trade by returning to the U.S.-Canadian border and focusing on a specific business trying to sell products across the border. Despite the general fascination with markets, businesses are, in many respects, the visible hand of trade. As international economist Edward Leamer observes (in the course of a critique of World 2.0):

There are very few exchanges that are mediated by "markets" . . . Most exchanges take place within the context of long-term relationships that create the language needed for buyer and seller to communicate, that establish the trust needed to carry out the exchange, that allow ongoing servicing of implicit or explicit guarantees, that monitor the truthfulness of both parties, and that punish those who mislead. Many exchanges occur between colleagues who work for the same firm. Indeed, about 40% of US imports are carried out internal to multinational enterprises.¹⁸

In other words, 40 percent of U.S. imports have the same business firm at both ends of that cross-border exchange. It's pretty clear, then, that the majority of U.S. imports have a firm—not necessarily the same one—at both ends of such an exchange, and an even larger proportion have a business firm involved as either the importer or the exporter.

To explore what might lie behind border effects, let's look not just at a specific company, but at a smallish one; large companies often have a lot of infrastructure, capabilities, and experience that make it comparatively easy for them to cross national borders. (Note that the largest companies are much more globalized than markets in general: in 2008, the world's one hundred largest nonfinancial companies had roughly 60 percent of their assets, employees, and sales *outside* their home markets, up 10 to 20 percentage points from 1990 levels.¹⁹)

A company that fits the bill is Ganong Brothers, Canada's oldest candy maker and a firm roughly one-thousandth Google's size. While chocolates comprise its principal product line, what has really attracted

attention are the company's attempts to sell jelly beans in the United States. Because of free trade agreements, there are no tariffs on jelly beans, and one might expect them to flow freely across the U.S.-Canadian border. And Ganong would seem well-positioned, literally, to serve the U.S. market: the state of Maine is just 1.8 kilometers away (1.1 miles for Americans) and visible from the offices of company president David Ganong. But it's not so simple.

Take labeling as an example. In Canada, nutritional labels read "5 mg," with a space between the number and the unit of measure. Yet Ganong's jelly beans can't get into America unless the nutritional label reads "5mg," without the space. Likewise, the two countries calculate daily nutritional values differently. His packages of jelly beans for American consumers need to state what percentage of an American's daily allotment of iron, say, the product provides, even if this percentage varies only slightly from that provided to a Canadian (e.g., 4 percent of the daily allotment of iron as opposed to 2 percent).²⁰

Such bureaucratic differences may seem trivial, but their effects are not. To comply with U.S. labeling laws, Ganong has to produce jelly beans in separate runs for its American and Canadian markets; this means that production runs for each are smaller and less economical. Separate bags for the two countries elevate the costs of packaging, and the company needs to spend more money and devote more warehouse space to storing separate inventories of bagged jelly beans for the United States and Canada.²¹

Lest it seem that the United States is unilaterally unreasonable, it's worth adding that Canada ties up trade in red tape as well. According to the Canada Border Services Agency, commercial importers into the country must register their businesses by obtaining a fifteen-digit business number. They must also create an accounting package for their shipments consisting of two copies of a "cargo control document," two copies of an invoice, two copies of a Form B3 ("Canada Customs Coding Form"), any other required permits or forms, such as health certificates, and in many cases, a "Certificate of Origin" form. Once shipments are reported to the government, they are granted a unique

fourteen-digit transaction number before they are released by customs and any duties or taxes are paid. To handle all this red tape, American exporters usually hire an export agent, who contracts with a shipper or carrier, who in turn deals with a clearing and forwarding agent in the destination country, who in turn deals with the buyer. Bank letters of credit are often required, as is insurance on the part of the exporter. Of course, none of this counts the documentation that is required on the American side to export goods.

Since September 11, 2001, the barriers to trade have increased further due to the application of new layers of security and more complex rules and regulations. Processing time to enter the United States from Canada by truck (the principal mode of transportation) now takes an estimated three times as long.²² Delays have become such a problem that the Canadian government now has a Web site devoted to tracking them in real time.

These changes have directly affected Ganong Brothers: as David Ganong related, his firm had a candy shipment delayed for five weeks so that the American government could analyze whether the yellow food coloring used in the product had been FDA approved. For four weeks, the government wouldn't reveal why the shipment was being held, what they were checking into, and what it would take to get it released.²³ With Ganong's American customers expecting just-in-time delivery, surprise hold-ups such as this leave them looking elsewhere for more reliable sources.

Jelly beans aren't even the industry hit most by red tape; other sectors with more complex production chains fare far worse. Take cars, whose production chains crisscross the U.S.-Canadian border with parts and subassemblies being shipped back and forth.²⁴ A business advocacy group calculates that a typical shipload of four thousand cars imported into North America faces a single customs transaction, while an equivalent number of cars produced and sold within North America faces a staggering *twenty-eight thousand* customs transactions!²⁵

The red tape *has* prompted some efforts at reform. In 2005, the U.S., Canadian, and Mexican governments launched the Security and Prosperity Partnership (SPP) of North America to tackle issues such as regulatory harmonization—to supplement the nine hundred pages on

the topic in the NAFTA treaty—as well as alleviate the impact of border controls.²⁶ But progress has been slow, partly because of domestic political resistance that taps into a rich vein of suspicion and resentment of the United States. Thus, as one Canadian think tank put it, “SPP regulatory harmonization is a policy straightjacket [sic] that tightens with each new agreement, narrowing Canadian regulatory policy flexibility as it conforms to the dominant US regime.”²⁷

David Ganong, of course, finds all this very frustrating. And Canadian prime minister Stephen Harper shares his exasperation: “Is the sovereignty of Canada going to fall apart if we standardize the jelly bean? I don’t think so.”²⁸

As if administrative barriers weren’t enough, Ganong faces other hurdles in selling to the United States. One is geographic. While the company is located right on the border, it does have to deal with distance *within* the United States. The U.S. state that it abuts from the north, Maine, is about the size of Portugal but has only 1.3 million people. It is more than 500 kilometers to Boston and nearly 900 kilometers to New York, over roads where the hazards include moose and snow. The dearth of nearby demand matters because sugar confectionery (given its relatively low value-to-weight ratio and limited scale economies) tends not to be shipped very far compared to, say, chocolate.

And then there is the economic constraint implied by currency exchange rates. Over the last few years, the U.S. dollar has hovered at around 1.1 Canadian dollars, compared to a level of around 1.5 in the late 1990s and early 2000s. From Ganong’s perspective, this represents more than a 25 percent drop in the value of each U.S. dollar the company receives. Given that the profitability of the typical business in the United States or Canada is about 5 percent of sales, this kind of exchange rate realignment would be more than enough to wipe out export profits for the average company.²⁹ Unsurprisingly, Canadian sugar confectionery exports to the United States have stagnated in U.S. dollar terms since 2005, the last time the average exchange rate exceeded 1.2; in terms of Canadian dollars, they have declined.³⁰

What has nonetheless kept Ganong and other Canadian sugar confectionery manufacturers interested in the U.S. market is the staggering

amount of protection afforded the U.S. sugar industry. Since 1812, the U.S. government has used a maze of tariffs and quotas to set artificially high prices for domestically grown sugar and prevent the import of sugar grown elsewhere. While this is often rationalized as protecting the U.S. customer from the roller coaster of world sugar prices, this protection is achieved by setting domestic prices so high that the roller coaster never risks running into them.

As a result, U.S. domestic sugar prices are typically two to three times as high as world prices, and the multiple has ranged as high as seven! In this respect, the U.S. government actually seems kinder to foreigners than to its own. It subsidizes the export of products containing expensive U.S. sugar, effectively softening the effects of high U.S. sugar prices for foreign but not U.S. consumers. And it hurts U.S. sugar confectionery manufacturers by elevating their costs, but without affecting Canadian (and other) manufacturers' costs. But U.S. sugar growers make out like bandits and have been creative in finding ways of sharing some of the gains with the political establishment, which in turn looks set to carry the torch of U.S. protection of this sector into its third century.

The United States, by the way, is not alone; the European Union and Japan also keep domestic sugar prices very high. Canada is actually the only major developed country to allow free importation of sugar. This discussion as well as the earlier discussion of regulatory harmonization suggest that the potential gains from opening up merchandise trade are still very large—a theme pursued further in the next chapter.

Differences and Distances

The case study of Ganong suggests that differences between the United States and Canada, while subtle, have large effects on trade and can therefore help explain the Canadian home bias multiples of five to ten cited earlier. But think of how much more different two randomly selected countries are than Canada is from the United States. Or, equivalently, think of all the ways in which Canada and the United States are *atypically* similar.

Books can and have been written on this topic. Here, I'll simply summarize some of the "matches" between Canada and the United States that directly affected Ganong, and the percentage of all the possible country pairs (roughly 13,000) in my CAGE dataset that also match on that dimension.

Culturally, Canada and the United States share the same dominant language (English), without which cross-border sales would have been even more challenging for Ganong. Communicating across a language barrier, even with a good (and hence expensive) interpreter, is still very hard—especially around subtleties like building trust, delivering constructive criticism, and motivating people. By way of comparison, the probability that a randomly selected country pair will exhibit a linguistic match is only 10 percent.³¹

Administratively, Canada and the United States are part of NAFTA (the North American Free Trade Agreement), which helped Ganong by eliminating formal trade barriers. Only 11 percent of all possible country pairs involve common membership in such a trading bloc. And Canada and the United States also (mostly) had a common colonizer, England, which has eased contracting and trade by fostering similarities in areas such as legal systems: both follow the traditions of English common law.³² By contrast, 22 percent of all possible country pairs share a common colonizer, and 39 percent share a common legal origin.³³

Geographically, Ottawa and Washington are only 738 kilometers from each other, almost exactly one-tenth the average distance between the capital cities of a pair of randomly selected countries (7,270 kilometers). And Canada and the United States also share a common land border—something that only 2 percent of all possible country pairs can claim. These geographic factors did more than all the others to induce Ganong's focus on the United States as its major export market, even though the company has recently been attempting to secure agents in other parts of the world.

We can summarize this data by excluding the continuous geographic distance measure and focusing on the five dimensions on which Canada and the United States matched. Multiplying the five percentages above

(and assuming that they are independent) implies just a .002 percent probability that a randomly selected country pair would match on all five dimensions that Canada and the United States did! Dropping the independence assumption increases this probability but it seems pretty clear that Canada and the United States are about as close as two countries get in a world of about two hundred.

Beyond these factors that impinged specifically on Ganong's exports of jelly beans, all sorts of other commonalities between Canada and the United States have been cited as mattering for trade in general. More than one hundred thousand Americans and Canadians each live in the other country, a tie shared by only 1 percent of all possible country pairs. The two countries also share the same dominant religion, Christianity, although most Canadian Christians are Catholic, unlike their American coreligionists. The probability of matching coreligionists—past the usual 30 percent threshold—in a randomly selected country pair is 51 percent. Canada and the United States also align in a number of cultural groupings, ranging from Samuel Huntington's eight civilizations (the United States and Canada are both Western) to Geert Hofstede's six different cultural groupings (the United States and Canada are both Anglo-Saxon). Only one-quarter to one-fifth of country pairs match in such terms.³⁴

Based on Hofstede's four dimensional schema for assessing national culture, the United States ranks second out of sixty-seven other countries/regions in terms of cultural proximity to Canada, behind Australia, and Canada is third closest to the United States, behind Australia and the United Kingdom.³⁵ This proximity is backed up by polling data. In one 2007 survey, 46 percent of Canadian respondents claimed that Canada's "values and goals" were "very similar" to those of Americans, higher than in Britain, Australia, and France.³⁶ U.S. citizens tend to agree and, in many surveys, they rank Canada as their favorite nation.³⁷ Even U.S. politician Sarah Palin, no xenophile, has cited Canada as one of two trustworthy foreign countries (the other is Kuwait). But that said, the United States focuses far less on Canada than Canada does on the U.S.—which is unsurprising given their relative sizes.

The Canadian focus *does* contain an undercurrent of suspicion that sometimes boils over into overt U.S.-baiting. In a recent election campaign, former prime minister Paul Martin accused his opponent, then prime minister Stephen Harper, of being “an extremist with ties to the United States.”³⁸ Sounds a lot like how American politicians describe terrorists! Harper denied the charges, was reelected, and continued on with his pro-integration agenda.

In addition, economic integration generates international tensions of its own. Of the forty-eight disputes before the World Trade Organization in which Canada is listed as complainant or respondent, the United States figures in twenty—less than its share of Canadian trade but not indicative of complete amity either. Still, the *absence* of such disputes is more worrying, for lack of integration tends to go hand in hand with the militarization of problems, as we will see in the next chapter.

But despite ongoing trade disputes and occasional political grandstanding, the U.S.-Canadian political relationship remains basically friendly. By comparison, take India and Pakistan. Since the Indian subcontinent was partitioned at the time of independence, in 1947, this relationship has been marked by overt and covert conflict as well as open hostility. As a result, Indo-Pakistani trade is just a fraction of what might be expected based on the patterns across other countries—only 2 to 4 percent, according to one study from 2004.³⁹ Emotions about other countries still matter.

Our discussion of Canada and the United States has so far focused on international distance, and pointed out that Canada and the United States are far closer than most country pairs. To complete the picture, one should look at internal as well as external distance. Thus, treating Canada, the world’s second largest country, as a point mass is clearly inappropriate; as William Mackenzie King, who served as Canadian prime minister over much of the interwar years complained, “We have too much geography.” The effects have been alleviated by the fact that 90 percent of all Canadians live within 250 kilometers of the U.S. border. Nonetheless, ignoring residual internal distance within Canada to the border with the United States leads to overestimation of the latter’s effects.⁴⁰

More subjective internal factors have also been shown to affect trade. A good example is the extent to which a country's culture is insular. Marshall McLuhan (a Canadian) once asserted that "Canada is the only country in the world that knows how to live without an identity." Although this statement and its cruder cousin—the jibe about Canada being the fifty-first (U.S.) state—are obvious exaggerations, Canada does, as a nation of immigrants, seem much more open to outside influences in general than, say, much of western Europe, not to mention East Asia. Toronto and Vancouver, to name two of my personal favorites, are particularly vibrant, multicultural cities.

To organize thinking about how distance along multiple dimensions affects the relationships between *any* two countries, I have assembled these and other dimensions of difference flagged by research into the CAGE framework depicted in table 3-1. The columns group dimensions of difference into these four CAGE categories (cultural, administrative, geographic, and economic) and the rows track the distinction between external and internal distance cited earlier.

Perhaps most fundamentally, table 3-1 recasts differences—the focus of most of the prior discussion—into distances. This reflects the fact that it isn't enough just to register differences: leaving it at that would bog us down in the details of more than ten thousand country pairs. Rather, we need to appreciate *degrees of difference or distance* in order to distinguish what is near from what is far. This is a more complicated but ultimately more fruitful notion of geography than either World 1.0 (which sees foreign countries as equally far) and World 2.0 (which sees them as equally close). As we'll see in the next section, the multidimensional CAGE distance construct does such a good job of explaining bilateral trade patterns and other important cross-border flows that it even suggests a "law" (or, more modestly, a heuristic) of distance.

Second, it is worth acknowledging that the columns do tend to blur into each other in some respects. Linguistic linkages from the cultural column are clearly correlated with colonial-era ties from the administrative column. And there is some ambiguity about whether to slot the

TABLE 3-1

The CAGE distance framework

	Cultural distance	Administrative distance	Geographic distance	Economic distance
External distance (bilateral/plurilateral/multilateral attributes)	<ul style="list-style-type: none"> • Different languages • Different ethnicities/lack of connective ethnic or social networks • Different religions • Differences in national work systems • Different values, norms and dispositions 	<ul style="list-style-type: none"> • Lack of colonial ties • Lack of shared regional trading bloc • Lack of common currency • Different legal system • Political hostility 	<ul style="list-style-type: none"> • Physical distance • Lack of land border • Differences in climates (and disease environments) • Differences in timezones 	<ul style="list-style-type: none"> • Differences in consumer incomes • Differences in availability of: <ul style="list-style-type: none"> • Human resources • Financial resources • Natural resources • Intermediate inputs • Infrastructure • Supplier/distribution structure • Complements • Organizational capabilities
Internal distance (unilateral attributes)	<ul style="list-style-type: none"> • Traditionalism • Insularity • Spiritualism • Inscrutability 	<ul style="list-style-type: none"> • Nonmarket/closed economy (home bias versus foreign bias) • Lack of membership in international organizations. • Weak legal institutions/corruption • Lack of government checks and balances • Societal conflict • Political/expropriation risk 	<ul style="list-style-type: none"> • Landlockedness • Geographic size • Geographic remoteness 	<ul style="list-style-type: none"> • (Economic size) • Low per capita income • Low level of monetization • Limited resources, inputs, infrastructure, complements, capabilities

Source: Adapted from Pankaj Ghemawat, "Distance Still Matters: The Hard Reality of Global Expansion," *Harvard Business Review* 79, no. 8 (2001): 137-47.

availability / unavailability of transport and communications infrastructure into the geographic column or the economic one. The simple summary point that I would make is that the bullet points in table 3-1 remain relevant no matter which columns we place them in; the arrangement here represents just one possibility.

Third, the last column in the list, concerning economic distances, deserves special comment both because discussion of it so far has been relatively limited and because it presents some particular complexities. The earlier discussions did suggest—and the results of the studies summarized in the next section confirm—that cultural, administrative, and geographic distances between countries tend to depress the interactions between them substantially.⁴¹ The same pattern holds up for the internal economic factors listed under economic distance in the figure: large countries with low levels of per capita GDP and monetization tend to trade proportionately less than others. But predictions around external economic distance are more mixed: thus, one kind of model suggests that trade should increase as a result of differences in per capita income, while another kind implies that it should decrease.⁴² I find it efficient to simply look and see.

The most obvious use of the CAGE framework is to force broad-based consideration of the many possible differences between countries instead of simply passing them over, as so often happens. I've seen firsthand that even large international companies are prone to miss out on cultural and administrative differences, in particular. Economists, too, probably share such biases. People gripped by technotrances are likely to overlook geographic differences. And so on.

The rows of the matrix provide a second kind of reminder: they call attention to the internal as well as external dimensions of distance, broadly defined. Faced with the same external realities, countries, companies, or individuals differ greatly in how well they engage with them. Internal distance is relevant at each of these levels—although it takes different forms—and will prove a particularly helpful construct in part III of this book.

The “Law” of Distance

I have mentioned the research base of the CAGE framework several times now. It consists for the most part of empirical studies—probably more than one thousand have been executed by now—that use “gravity models” to study bilateral interactions. Such models resemble Newton’s law of gravitation in linking interactions between countries to the product of their sizes (usually their gross domestic products) divided by some composite measure of distance that incorporates some of the factors listed in table 3-1. I tend to think of them as *distance models* because what is most interesting about them resides in the denominator term: which types of distance really matter, and how much? Either way, such models explain not only why the U.S.-Canadian trading relationship is so large, but also *one-half to two-thirds of all variation in bilateral trade flows between all possible pairs of countries*. As a result, they have been described as providing “some of the clearest and most robust empirical findings in economics.”⁴³

To present an example that is based on some of the same information that is relied on elsewhere in this chapter, let me describe the results of a study I undertook. After controlling for economic size, I estimated the sensitivity of trade between all country pairs for which data were available to various types of distance, both at the (cross-industry) country level and at the level of individual industries.

To start with geographic or physical distance, a useful stylized fact is that a 1 percent increase in the geographic distance between two locations leads to about a 1 percent decrease in trade between them. Put another way, the distance sensitivity is -1 .⁴⁴ This particular value simplifies the calculations: it implies that trade intensity is inversely related to geographic distance. Applying this coefficient to the U.S.-Canada example, for instance, recall that Ottawa and Washington are only one-tenth as far from each other as the capitals of a randomly selected country pair. So, with a distance coefficient of -1 , trade between Canada and the United States should be expected to be ten times as intense for that reason compared to the typical country pair. To say the same thing from

a different perspective, U.S. trade with Chile *is only 6 percent of what it would be* if Chile were as close to the United States as Canada.

Then there are the other dimensions of distance/proximity. I found that two countries with a common language trade 42 percent more on average than a similar pair of countries that lack that link. Countries sharing membership in a trade bloc (e.g., NAFTA) trade 47 percent more than otherwise similar countries that lack such shared membership. A common currency (like the euro) increases trade by 114 percent. And if a country has ever colonized the other, the two countries trade 188 percent more on average (even though many colonial ties were dissolved decades or even centuries ago). Differences in levels of corruption and political stability tend to depress trade volumes. Countries like the United States and Canada that share a common land border typically see 125 percent more trade than two nonadjoining countries—above and beyond the geographic proximity effect discussed earlier. And the baseline estimates indicate that differences in per capita income generally have a positive effect on trade intensities, although that gets reversed in other specifications.⁴⁵

Interested readers can go to my Web site (www.ghemawat.org) and play around with implications of these and other estimates. One way of summarizing them is, once again, to exclude the continuous geographic distance measure and focus on the five dichotomous ones for which coefficients are reported above. Based on those coefficients, a country pair that matches perfectly across all five should trade twenty-nine times as intensely as a country pair that differs across all five.⁴⁶ So the difference between near and far matters a great deal as far as trade is concerned—especially when one reckons with the direct effects of physical distance, which were excluded from the calculation.

Scholars have fitted similar gravity/distance models to other flows, including foreign direct investment, cross-border equity trading, sovereign lending, patent citations, phone calls, and migration patterns (not to mention remittances, e-commerce, international air traffic, and even the incidence of wars). None of these flows has been studied nearly as intensively as trade, the traditional focus of international economics, and in

some cases, all we have is a study or two to rely on. That said, there *are* some broad headlines here that I group under the law of distance.

First, geographic distance matters across the board. It was probably obvious—except to World 2.0 extremists—that geographic distance would affect trade (although probably less obvious that the effect would be so large). But it isn't obvious that weightless *financial and informational flows* should decay as distance increases: one might expect FDI, at least, to increase with geographic distance as it substitutes for trade. Yet decay they generally do.

The estimated sensitivity of financial flows to geographic distance varies between -0.5 and -1.0 ,⁴⁷ with FDI and bank lending typically falling off faster with distance than portfolio investment.⁴⁸ In fact, some studies estimate FDI to be *more* distance-sensitive than the usual benchmark of -1 for trade. Perhaps even more surprisingly, phone traffic's distance sensitivity also seems comparable to or a bit greater than trade's!⁴⁹ The distance sensitivity of immigration does turn out to be lower in absolute terms, about -0.25 in one study,⁵⁰ presumably because of the large interregional flows from East Asia, Latin America, and the Middle East and North Africa to OECD countries (other flows tend to be more intraregional).⁵¹ The distance sensitivity of knowledge flows, variously measured, may be slightly lower yet.⁵² The implications of these variations for how much intensity drops as physical distances increase are quite large.⁵³

The second headline is that other dimensions of distance discussed earlier in the specific context of the trade, particularly cultural and administrative distance, typically reduce FDI, knowledge, and other cross-border flows as well. Thus, one study found that a common language led to 43 percent more bilateral FDI, colonial links to 118 percent more, and common legal origins to 94 percent more.⁵⁴ In fact, when FDI does take place in spite of significant cultural and administrative distance, it often involves not a solo venture but a joint venture with a local. The discussion of Google in the last chapter, which involved FDI rather than trade, points in the same direction: we saw it wrestling with cultural and administrative differences in particular. Another illustration

of sensitivity: if you look at all U.S. companies that operate in just one foreign country, that country is Canada 60 percent of the time (and 10 percent of the time, the United Kingdom).⁵⁵ This suggests that cultural and administrative commonalities loom even larger for FDI than they do for trade.

A New View of Economic Geography?

Given the broad law of distance, remapping or reimagining the world along those lines seems important—and certainly more important than it would be if just trade were involved, or if flows didn't mostly tend to decay over different types of distance. Of course, a call for a remapping is strong stuff. Yet Paul Krugman, whose seminal work on economic geography won him the Nobel Prize, has argued for just such a shift.

About twenty years ago, Krugman relates, views of the world split harshly between those seeing countries as “discrete economic points, whose location in space is irrelevant”; those who thought “location in space is all and borders are irrelevant”; and those who believed in “the vision of a spaceless, borderless world in which distance had been abolished—not a world that yet exists, but possibly one just over the horizon.” Krugman's conclusion, based on empirical research:

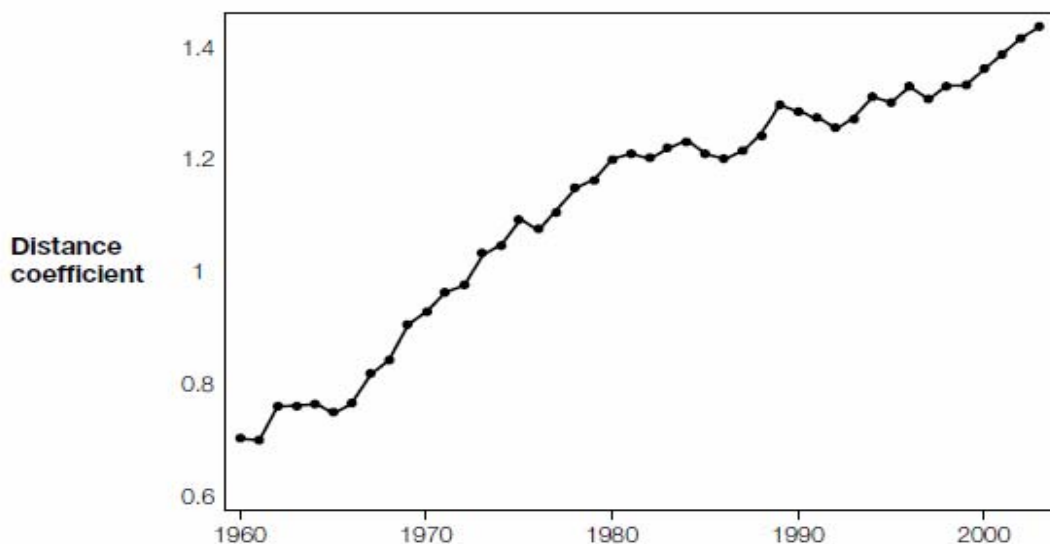
*Distance matters a lot, though possibly less than it did before telecommunications. Borders also matter a lot, though possibly less than they did before free trade agreements. The spaceless, borderless world is still a Platonic ideal, a long way from coming into existence. The compromise view isn't as radical as some would like. But it's a significant change from the way most of us viewed the world economy not too long ago.*⁵⁶

I generally agree with this: World 3.0 involves taking an integrative perspective in which both borders and distance matter. More specifically, World 3.0 treats flows as typically declining with distance—and also being subject to discontinuous drop-offs at borders of various

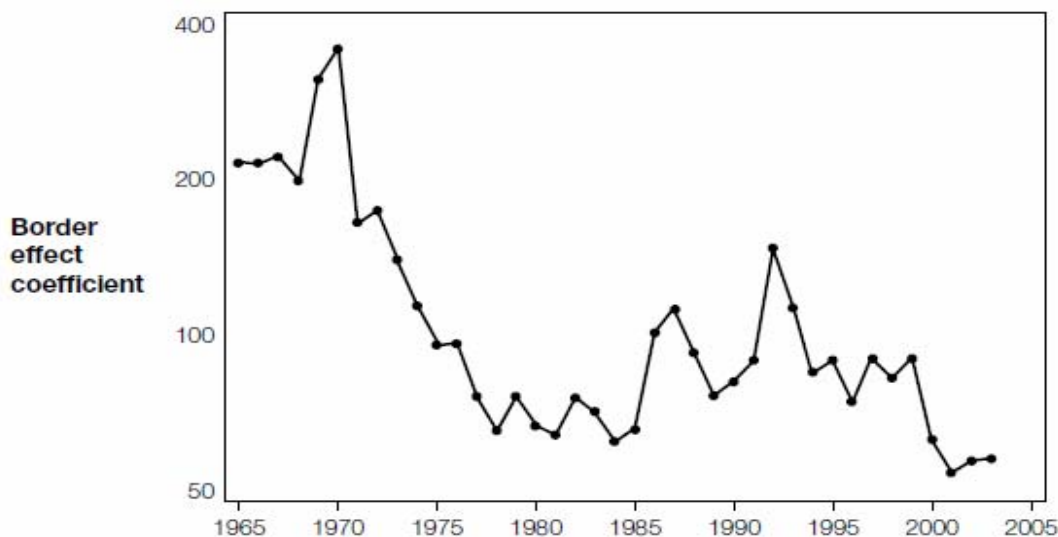
FIGURE 3-1

Distance sensitivity and border effects

Distance



National borders



Source: TK.

sorts. I would, however, place a bit more of an emphasis than Krugman does on distance effects, and not just for their novelty (to traditional trade theory). Figure 3-1 summarizes just one of several studies showing that border effects have decreased substantially over the last few

decades, whereas geographic distance sensitivity actually seems to have increased! Shorter average shipping distances for exports point in the same direction.⁵⁷ In fact, a meta-analysis over a longer time frame suggests that geographic distance effects may actually have gone up relative to a hundred years ago!⁵⁸ Distance seems to be in robust good health rather than dead.

Is this a new view of economic geography? Krugman suggests that it is a changed view, at least. What I would stress is the contrast with World 1.0 and World 2.0, neither of which takes geography seriously at all. World 1.0 emphasizes national borders while giving short shrift to distance effects and World 2.0 ignores both with its focus on a borderless, spaceless world. This chapter has presented a raft of evidence that neither of these views corresponds to how international relationships really work. To understand them, we need to understand the landscape across which they operate—cultural, administrative, and economic as well as geographic—and what is near versus what is far. Such understanding also broadens the usual sense of the levers that can be pulled to open up further across borders, as discussed in the next chapter.

Chapter Three

1. Note that distance, or to be more precise, *external* distance, is an attribute of two countries or locations, not one.
2. See, for instance, Mykyta Vesselovsky, Florence Jean-Jacobs, and David Boileau, "Canadian Performance in the U.S. Market, 1995–2009," analytical paper series 007, Foreign Affairs and International Trade Canada, 2010.
3. John F. Helliwell, *How Much Do National Borders Matter?* (Washington, DC: Brookings Institution Press, 1998), 38.
4. James E. Anderson and Eric van Wincoop, "Gravity with Gravitas: A Solution to the Border Puzzle," *American Economic Review* 93, no. 1 (March 2003): 170–192.
5. See, for instance, Patricia Lovett-Reid, "The Real Cost of Cross-Border Shopping," MSN Money, November 13, 2009, <http://money.ca.msn.com/investing/patricia-lovett-reid/article.aspx?cp-documentid=22580504>.
6. I prefer this approach to the one of backing out intranational trade from total production minus exports. The trouble with this latter approach is that it is hard to know what distances to associate with intranational trade—yielding wildly varying estimates. See, for instance, Matthias Helble, "Combining International Trade and Intra-national Transport Flows," working paper 13/2006, Graduate Institute of International Studies, Geneva.
7. Ibid.
8. The median value was a pretty astounding sixty-two!
9. See, for instance, Natalie Chen, "Intra-national Versus International Trade in the European Union: Why Do National Borders Matter?" *Journal of International Economics* 63 (2004): 93–118.
10. Calculated on the basis of the gravity models described later in the chapter.
11. Jarko Fidrmuc and Jan Fidrmuc, "Integration, Disintegration and Trade in Europe: Evolution of Trade Relations During the 1990s," ZEI working paper B 03-2000, University of Bonn, 2000.
12. Jeffrey A. Frankel, *Regional Trading Blocs in the World Economic System* (Washington, DC: Peterson Institute for International Economics, 1997), 12.
13. Volker Nitsch and Nikolaus Wolf, "Tear Down This Wall: On the Persistence of Borders in Trade," Warwick Economic research paper 919, University of Warwick, October 2009.
14. Marie Daumal and Soledad Zignago, "Border Effects of Brazilian States," Centre d'Etudes Prospectives et d'Informations Internationales (CEPII), June 2008.
15. Sandra Poncet, "Measuring Chinese Domestic and International Integration," *China Economic Review* 14 (2003): 1–21; and Sandra Poncet, "A Fragmented China," *Review of International Economics* 13 (2005): 409–430.
16. By contrast, estimates for U.S. states and Canadian provinces suggest border effects are lower than five. See Holger C. Wolf, "Intranational Home Bias in Trade," *Review of Economics and Statistics* 82, no. 4 (2000): 555–563; John Helliwell, "National Borders, Trade and Migration," *Pacific Economic Review* 2, no. 3 (1997): 165–185.
17. In addition to the U.S., where internal trade is significantly larger than international trade, data for countries such as Japan, France, Germany, and Spain indicate internal trade comparable to if not much greater than their total international trade.
18. Edward E. Leamer, "A Flat World, a Level Playing Field, a Small World After All, or None of the Above? A Review of Thomas L. Friedman's *The World Is Flat*," *Journal of Economic Literature* 45 (March 2007): 83–126, 100.
19. UNCTAD, *World Investment Report 2010*, 18, and comparisons drawing on earlier World Investment Reports.
20. Elizabeth Thompson, "That Which We Sell as a Jelly Bean by the Same Label Would Taste as Sweet," *Montreal Gazette*, August 22, 2007.
21. David Ganong, telephone interview by author, August 20, 2008.

22. NACC, "Enhancing Competitiveness in Canada, Mexico, and the United States: Private-Sector Priorities for the Security and Prosperity Partnership of North America (SPP)," Initial Recommendations of the North American Competitiveness Council (NACC), February 2007, 19.

23. David Ganong, telephone interview by author, August 20, 2008.

24. This is a reason why official statistics overestimate the real amount of trade, as discussed in chapter 2.

25. Mark Andrew Dutz, "Harmonizing Regulatory Mechanisms: Options for Deepening Investment Integration in South Asia," World Bank working paper 36249, October 2004.

26. Bruce Campbell, "More Than Jellybeans: The SPP Regulatory Framework Agreement and Its Impact on Chemicals Regulation," Canadian Centre for Policy Alternatives, North American Deep Integration Series 1, no. 1 (September 2007): 6.

27. Thompson, "That Which We Sell as a Jelly Bean."

28. Since Ganong is privately held, its profitability is not publicly known.

29. Trade Data Online from Industry Canada, http://www.ic.gc.ca/sc_mrkti/tdst/tdo/tdo.php?headFootDir=/sc_mrkti/tdst/headfoot&naArea=9999&lang=30&searchType=CS&toFromCountry=CDN¤cy=CDN&hSelectedCodes=|3113&period=5&timePeriod=5|Complete+Years&periodString=&productBreakDown=Complete+Years&reportType=TE&productType=NAICS&areaCodeStrg=9999|TOP&runReport_x=37&javaChart_x=&gifChart_x=&outputType=RPT&chartType=columnApp&grouped=GROUPED#tag.

30. At a 20% threshold—the standard one.

31. The exceptions are Quebec in Canada and Louisiana in the U.S.—former French colonies that retain, to some degree, French-style civil law, even though the French ceded political control more than two centuries ago.

32. This calculation is based on a coarse definition of legal origins; a finer-grained one would significantly reduce that percentage.

33. Samuel P. Huntington, *The Clash of Civilizations and the Remaking of World Order* (New York: Simon and Schuster, 2003); Geert Hofstede, *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations* (Thousand Oaks CA: Sage Publications, 2001).

34. Hofstede's original schema, probably the most widely used of its kind, focuses on four dimensions of culture: power distance, individualism, masculinity, and uncertainty avoidance. Subsequent work on East Asian cultures prompted him to add long-term orientation as a fifth dimension.

35. Randy Boswell, "Canadians Approve U.S. Goals: Poll; Identify with Southern Neighbours More Than Other Nations," *Montreal Gazette*, September 10, 2007.

36. Lydia Saad, "In U.S., Canada Places First in Image Contest; Iran Last," Gallup, February 19, 2010, <http://www.gallup.com/poll/126116/Canada-Places-First-Image-Contest-Iran-Last.aspx>.

37. Jefferson Morley, "World Opinion Roundup: Canada's Anti-American Impulse," *Washington Post*, January 23, 2006.

38. Amita Batra, "India's Global Trade Potential: The Gravity Model Approach," Indian Council for Research on International Economic Relations, December 2004. The ratio of India's potential to actual trade with Pakistan is estimated at 52.2 based on analysis using PPP-adjusted GNP and GNP per capita. Based on GNP and GNP per capita at current exchange rates, this ratio is 26.7. The estimate of 2%–4% is based on the general range implied by these ratios.

39. Another geographic attribute that might be treated as Canada-specific rather than as a bilateral attribute of Canada and another country is Canada's privileged location relative to world markets. Scaled by distance in the way described in the next section, Canada faces effective overall export demand nearly seven times that of Australia, a country far removed from nearly everywhere else.

40. Waldo R. Tobler, "A Computer Movie Simulating Urban Growth in the Detroit Region," *Economic Geography*, 46, 2 (1970): 234–240.

41. Even here, there are exceptions having to do with cultural, administrative, and geographic arbitrage. See Pankaj Ghemawat, *Redefining Global Strategy* (Boston: Harvard Business School Press, 2007), especially chapter 6.

42. Traditional models of comparative advantage imply the former prediction; models of intraindustry trade based on monopolistic competition are more consistent with the latter.

43. Edward E. Leamer and James Levinsohn, "International Trade Theory: The Evidence," in Gene M. Grossman and Kenneth Rogoff, eds., *Handbook of International Economics* (Amsterdam: Elsevier Science, 1995), 1339–1394.

44. Many of the differences cited in table 3-1 *aren't* followed up on in the specific estimation exercise reported on in the text, for varied reasons. Religion didn't work well in past empirical studies, nor did Hofstede-style cultural values. Legal origins are highly correlated with colonial history—which is more sharply measured in terms of colony/colonizer linkages than common colonizers. Political hostility is hard to measure systematically (although prior wars are reported by one study to shrink trade by 80%!). Most countries of any size do not vary much in terms of membership in the usual set of international organizations or ratification of the standard set of international treaties (although the U.S. is an outlier). Data on internal geographic distance continue to be problematic, and systematic, comparable data across broad cross-sections of countries are simply publicly unavailable for many of the kinds of economic differences/distances listed in table 3-1.

45. Note that this distance sensitivity is an elasticity in the sense that a distance sensitivity of $-x\%$ implies that a 1% increase in geographic distance leads to a predicted $x\%$ decrease in trade. The overall effect of geographic distance on trade is proportional to distance raised to the power of that distance sensitivity. For a distance sensitivity of -1 , this formula simplifies to relative trade intensity being the reciprocal of relative distance.

46. This positive effect is consistent with traditional arbitrage theories.

47. Note that this figure picks up variations in the height of border effects rather than the (average) heights discussed earlier. It thereby quantifies, in a sense, the actual degree of difference, or distance. Also note that among the many dimensions of difference or distance missing from the calculation in the text is one that plays the single biggest role in boosting U.S.-Canadian trade relative to the averages: geographic proximity.

48. These values are, once again, elasticities. See note 44.

49. Christian Daude and Marcel Fratzscher, "The Pecking Order of Cross-Border Investment," European Central Bank working paper series, No. 590, February 2006. *Journal of International Economics* 74, no. 1 (2008): 94–119.

50. Jean-Michel Guldmann, "Spatial Interaction Models of International Telecommunication Flows," Department of City and Regional Planning, Ohio State University (paper prepared for presentation at the 40th Congress of the European Regional Science Association, Barcelona, Spain, September 2000).

51. Joshua Lewer and Hendrik Van den Berg, "A Gravity Model of Immigration," *Economics Letters* 99, no. 1 (2008): 164–167.

52. World Bank, *World Development Report 2009* (Washington, DC: World Bank, 2009), 149–152.

53. Yao Li, "Borders and Distance in Knowledge Spillovers: Dying Over Time or Dying with Age? Evidence from Patent Citations," CESifo working paper series 2625, 2009.

54. To calibrate the effects of such variations in distance sensitivity, consider two focal distances, 1,000 kilometers (corresponding, roughly, to interactions within continental regions) and 0,000 kilometers (the interregional level). A distance sensitivity of -1 means, as noted above, that interactions over distances ten times as long will be only one-tenth as intense. A distance sensitivity of -0.25 , in contrast, implies an intensity multiple of over one-half; one of -0.5 a multiple of about a third; and one of -0.75 a multiple of about a sixth. And

increasing distance sensitivity farther, to -1.25, would reduce the intensity multiple to about one-twentieth.

55. It also found that common membership in a trading bloc no longer had a significant effect. Daude and Fratzscher, "The Pecking Order of Cross-Border Investment."

56. Based on data for 2006 from the U.S. Bureau of Economic Analysis processed by Bill Mataloni at the request of the author.

57. Krugman, "The new economic geography: where are we?" discussion paper presented at International Symposium "Globalization and Regional Integration from the viewpoint of Spatial Economics," IDEJETRO, 2004, http://www.ide.go.jp/English/Inter/Sympo/pdf/krug_summary.pdf.

58. Céline Carrere and Maurice Schiff, "On the geography of trade: distance is alive and well," *Etudes et documents*, CERDI, May 2004.

59. Anne-Célia Disdier and Keith Head, "The Puzzling Persistence of the Distance Effect on Bilateral Trade," *Review of Economics and Statistics* 90, no. 1 (2008): 37–48, figure 3.