Our look at the direction of merchandise exports for five different countries has started to suggest that international interactions are very sensitive to distance. In this segment I want to unpack the different kinds of distance that seem to matter for international interactions. And I want to tell you a little bit about the research base underlining these estimates because this is one of those areas in which there's a lot of relevant research that's been done, that simply, by and large, still hasn't made it over into the, into thinking about international business.

So the CAGE distance framework is my attempt to apply an acronym to thinking about the four principal categories of distance highlighted by hundreds, if not thousands, of previous studies by economists. The basic idea is that the international interactions are disproportionately concentrated amongst countries that are close to each other culturally, administratively, geographically, or economically. And in contrast in countries that are far apart along these dimensions are likely to have relatively little in the way of international interactions with each other. So just to sort of get a sense of where this relationship comes from let's think of what the world's largest bilateral trading relationship is at this point.

Think about it. It's not the U.S. China. It's actually still US, Canada. Why might US, Canada be the world's largest bilateral trading relationship? Well, when we look at commonalities between the US and Canada along all these dimensions, we start to see some of the reasons why that would be, that might be the case. Culturally these are both mostly English-speaking countries which presumably helps simplify interactions. Administratively they're both part of NAFTA, the North American Free Trade Agreement, which for sure helps trade. In addition, they were both colonized by the British and have legal systems derived from English common law, which also should make commercial transactions a bit easier.

Geographically, they share a common border with each other and in fact, they're even closer than that might indicate. It turns out that roughly 90% of Canadians live within 250 kilometers of the border with the US. And then, finally, and economically speaking they're at roughly similar levels of economic development which, presumably, simplifies cross-border trade in categories such as automotive, the single most important category of all. If per capita incomes were very different, Canadians and Americans would demand very different types of cars, and we probably wouldn't see nearly as much cross-border trade between them as we actually do. So Canada and the U.S. are a good reminder, of you know the commonalities that seem to bind these two nations together into an unprecedented or unmatched amount of trade with each other. And it's worth thinking about the fact that this just isn't just a Canada, U.S. story. The basic effects that we are talking about are much broader, and tend to be very, very large indeed. So, let me show you the results of a regression analysis I ran using 97 countries. I created a matrix that was 97 by 97 countries in terms of size. And then, treating trade between every possible pair of countries as the dependent variable. As what I was trying to explain, I looked at the effects of whether two countries spoke a common language or not. Whether they were part of a free trade agreement with each other like NAFTA or not. Whether they ever had a colony colonizer linkage in their past. And whether they had a common land border. And these are the results of the regression that I ran. So it turns out that for merchandise trade, if two countries speak the same language officially, they still have more than twice as much trade between them as two otherwise similar countries that didn't share the same language. Our trade agreement boosts trade as well, although not by nearly as much, by about 30% based on this set of estimates. Which reminds us, that there is some trade agreements like the set of agreements under the European Union which actually have been very effective in binding regions together, and that there are a lot of other trade agreements that are at best, works in progress.

Another really big effect comes from having had a colony colonizer linkage in one's past. That more than doubles trade. And then finally a common land border even in this day and age still boosts trade by more than 60%. I should also add that the specification here is multiplicative. So if I were looking at how much more trade I would expect to see between two countries that share all four of these commonalities, versus two countries that don't share any of these four commonalities. I would have to multiply the effects out, 2.19 times 1.29 times 2.08, times 1.61, which would get me up to 9.4. What does that mean? That means that two countries that share these four commonalities with each other are predicted to have ten times nearly as much trade with each other, as two countries that don't share those commonalities. And I can make the numbers become even larger by also including the distance effects that I was controlling for when running this regression. So, if I have the distance between two countries, that leads to almost three times as much trade between them as would otherwise happen. And so if I super-impose that effect on the coefficients that I already have here, it's easy to see two countries that are close to each other having 20, 30 times as much trade as two otherwise similar countries that didn't have those commonalities. Those are very, very large effects indeed.

So trade is very well explained by similar, by similarities versus differences along these dimensions, and what makes it interesting is that this structure applies not just to trade, but to other kinds of international flows as well. So on this slide, I've taken all US corporations that have one foreign operation, and classified them in terms of which country that foreign operation is located in. The first and most obvious thing is that the distribution is highly skewed. The most popular country by itself accounts for 60% of US multinationals that have just one foreign operation, but which country might that be? Well, if you were paying attention to the earlier discussion of bilateral trade, you can probably guess that, that country is Canada. Canada is closed to each other for along dimensions that affect not only trade but FDI, which is why Canada accounts for 60% of U.S. firms venturing overseas for the first time. And what's the second country? The second country turns out to be the UK. Not as closed geographically as some other countries, but there are the cultural linkages. There is the colony colonizer link and it's not that far away geographically. After that we get to Germany, Japan, and Mexico. But what this slide is a reminder of is that some of the same kinds of factors are also factors that seem to affect investment in general.

The final point I'd like to make about this CAGE framework has to do with the fact that actually, the same kinds of variables that we have been talking about, cultural, administrative, geographic and economic. Distance versus proximity, turn out to affect not just merchandise trade, or foreign direct investment, but all the other categories of flows listed on this particular slide. So, another way of thinking about it is, Canada ranks within the top five US partners along each and every one of these different flows. Not just in terms of trade or not just in terms of FDI, suggesting that there is some underlying notion of distance that cuts across different kinds of flows that really helps explain where international interactions are going to be relatively intense, and where they're going to be relatively weak. And so, further data on these international interactions can be found on my webpage on some current working papers where we're trying to document how broad the relationship implied by the CAGE framework actually is, in terms of extending across all these different kinds of flows.