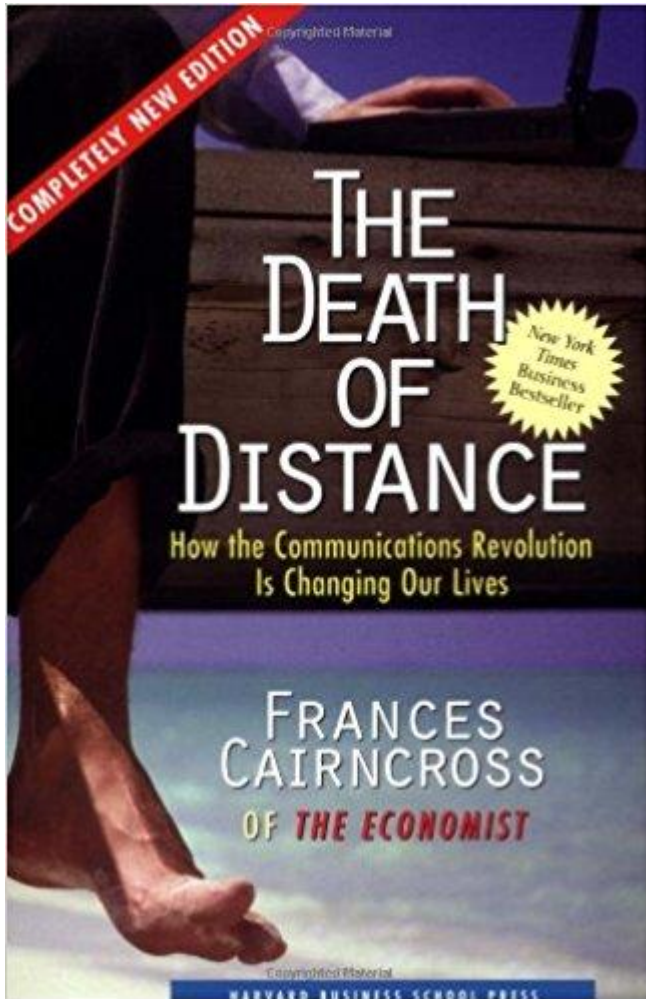


# The changing role of distance over time

Dennis Novy

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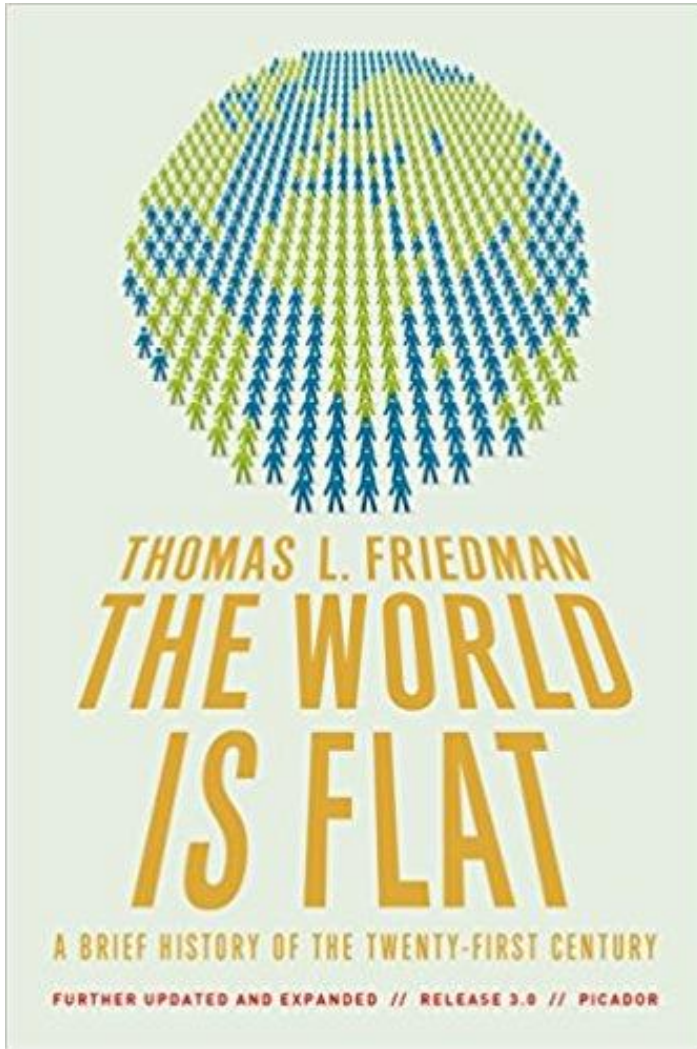
June 13, 2018



Cairncross (1997) “The Death of Distance”

Cairncross (2001) “The Death of Distance 2.0”

“To allow communications to work their magic, poor countries will need sound regulations, open markets, and, above all, widely available education. Where these are available, countries with good communications will be indistinguishable. They will all have access to services of world class quality. They will be able to join a world club of traders, electronically linked, and to operate as though geography has no meaning. This equality of access will be one of the great prizes of the death of distance.”



Friedman (2007) “The World is Flat – A Brief History of the Twenty-First Century”

“what the flattening of the world means is that we are now connecting all the knowledge centers on the planet together into a single global network”

“from 1492 to around 1800... it shrank to world from a size large to a size medium. From 1800 to 2000... shrank the world from a size medium to a size small. ...around the year 2000 we entered a whole new era... shrinking the world from a size small to a size tiny and flattening the playing field at the same time”



# The Leamer question

Leamer (2007) reviews Friedman.

He asks:

“Here are titles of four books. Based on the titles alone, which do you think would sell the most copies?”

*The World is Flat*

*The End of Poverty*

*In Defense of Globalization*

*Globalization and Its Discontents*”

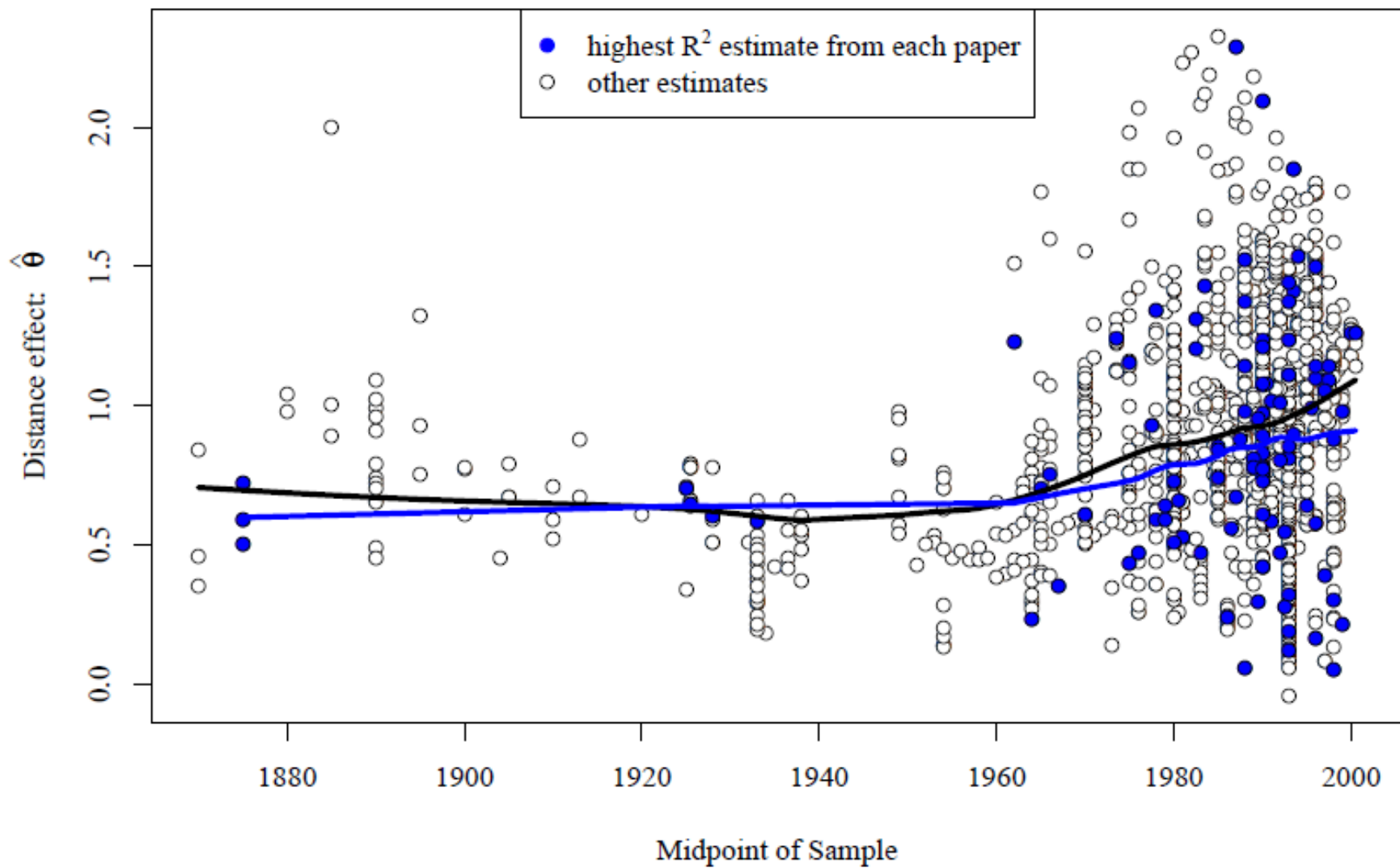
“The startling reality is that *The World is Flat* has been on the New York Times bestseller list forever and is ranked number 1 on Amazon on February 21, 2006. Meanwhile, Jeffrey Sachs’s *The End of Poverty: Economic Possibilities for Our Time* is ranked number 515, which seems like a big number compared with the number 1, but Bhagwati’s *In Defense of Globalization* is ranked 20,602, and Joseph Stiglitz’s *Globalization and Its Discontents* is ranked 52,196.”

“We economists have great ideas but not great ways of expressing ourselves. It starts with bad titles. This raises the philosophical question: When economists speak, but no one listens, did we say anything?”

# Distance is alive and kicking

Disdier and Head (2008) “The Puzzling Persistence of the Distance Effect on International Trade”

“We examine 1467 distance effects estimated in 103 papers... the estimated negative impact of distance on trade rose around the middle of the century and has remained persistently high since then. This result holds even after controlling for many important differences in samples and methods.”





# With a balanced panel

Source: Jacks, Meissner and Novy (2011)

**Table 3a: Gravity in Three Eras of Globalization (OLS)**

Dependent variable: log of bilateral exports from i to j

*Panel A: With importer/exporter fixed effects*

	1870-1913			1921-1939			1950-2000		
	<u>Coefficient</u>	<u>Std. Err.</u>		<u>Coefficient</u>	<u>Std. Err.</u>		<u>Coefficient</u>	<u>Std. Err.</u>	
GDP	0.36	0.17	***	1.21	0.33	***	1.23	0.14	***
Distance	-0.41	0.09	***	-0.28	0.08	***	-0.61	0.05	***
Fixed exchange rate regime	0.30	0.10	***	0.09	0.05	*	0.22	0.12	*
Common language	0.57	0.21	***	0.33	0.17	**	0.17	0.12	
Imperial membership	1.72	0.40	***	0.83	0.25	***	0.68	0.15	***
Shared border	0.98	0.22	***	0.91	0.15	***	0.66	0.09	***
Observations	11418			4940			13256		
R-squared	0.70			0.75			0.86		

*Panel B: With annual importer/exporter fixed effects*

	1870-1913			1921-1939			1950-2000		
	<u>Coefficient</u>	<u>Std. Err.</u>		<u>Coefficient</u>	<u>Std. Err.</u>		<u>Coefficient</u>	<u>Std. Err.</u>	
GDP	-	-		-	-		-	-	
Distance	-0.38	0.09	***	-0.23	0.09	***	-0.61	0.05	***
Fixed exchange rate regime	0.27	0.23		0.17	0.14		0.40	0.15	***
Common language	0.57	0.24	*	0.22	0.19		0.15	0.14	
Imperial membership	1.67	0.46	***	0.70	0.30	*	0.67	0.17	***
Shared border	1.01	0.24	***	0.97	0.17	***	0.65	0.11	***
Observations	11418			4940			13256		
R-squared	0.79			0.81			0.93		

NB: Importer, exporter and year fixed effects not reported. Robust standard errors clustered at the country pair level.

\*\*\* significant at the 1% level; \*\* significant at the 5% level; \* significant at the 10% level.



# What is the distance effect?

Standard gravity equation:

$$\ln x_{ij} = \beta \ln dist_{ij} + \alpha_i + \alpha_j + \varepsilon_{ij}$$

Therefore we get the distance elasticity

$$\beta = \frac{\partial \ln x_{ij}}{\partial \ln dist_{ij}}$$

In the data we typically have

$$\beta \approx -1$$

Holds in principle for trade in goods, services and FDI

# What exactly is the puzzle?

Many people expect  $\beta$  to decrease over time in *absolute* magnitude. That is,  $\beta$  should go towards zero.

But an elasticity is a *relative* concept.

**Absolute distance barriers have probably declined everywhere. But maybe they have declined more over shorter distances.**

Interpretation in one word: regionalisation.

Therefore, is there really a puzzle? Or does the “puzzle” spring from human overexcitement? Remember:

- “The Death of Distance”
- “The World is Flat”

## U.S. bilateral trade costs

<i>Partner country</i>	<i>Tariff equivalent <math>\tau</math></i>		
	1970	2000	Percentage change
Canada	50%	25%	-50%
Germany	95	70	-26
Japan	85	65	-24
Korea	107	70	-35
Mexico	96	33	-66
UK	95	63	-34
<i>Simple average</i>	88	54	-38
<i>Trade-weighted average</i>	74	42	-44

All numbers in percent and rounded off to integers.

Countries listed are the six biggest U.S. export markets as of 2000.

## UK bilateral trade costs

<i>Partner country</i>	<i>Tariff equivalent <math>\tau</math></i>		
	1960	2002	Percentage change
Australia	45%	67%	+50%
Canada	48	68	+43
Chile	70	88	+24
France	65	42	-36
Germany	58	39	-33
Iceland	75	74	-2
India	57	73	+28
Ireland	36	23	-37
Italy	64	51	-21
Japan	82	71	-13
Korea	124	68	-45
Mexico	95	95	-1
Netherlands	45	33	-28
New Zealand	39	79	+102
Sweden	49	51	+4
United States	60	54	-10

Novy (2007) shows that the decline in trade costs is greatest for nearby trading partners.

### **Distance and the decline in trade costs**

*The percentage decline in the tariff equivalent  
between 1970 and 2000*

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In(Distance)	-0.048** (-3.98)
Constant	0.381** (2.67)
$R^2$	0.566

---

273 observations, country fixed effects included.

\*\* significant at the 1 percent level.

---

**Absolute distance barriers have probably declined everywhere. But maybe they have declined more over shorter distances.**

- Political reasons:
  - Free trade agreements and currency unions are typically regional. Same with EU/Single Market.
- Technological reasons:
  - Air freight costs have fallen rapidly, also ocean freight costs (see Hummels 2007). But what if truck shipping costs (for shorter distances) have fallen even faster?
  - Increasing returns/agglomeration effects at the local level? Think urbanization.

- The rise of international supply chains:
  - If goods/inputs cross borders multiple times, then you should avoid long distances (see Kei-Mu Yi 2003).
  - Business networks
  - Face-to-face contact
- Reshoring/inshoring:
  - Wage gaps with developing countries are shrinking.



# Domestic distance

Source: Hillberry and Hummels (2008)

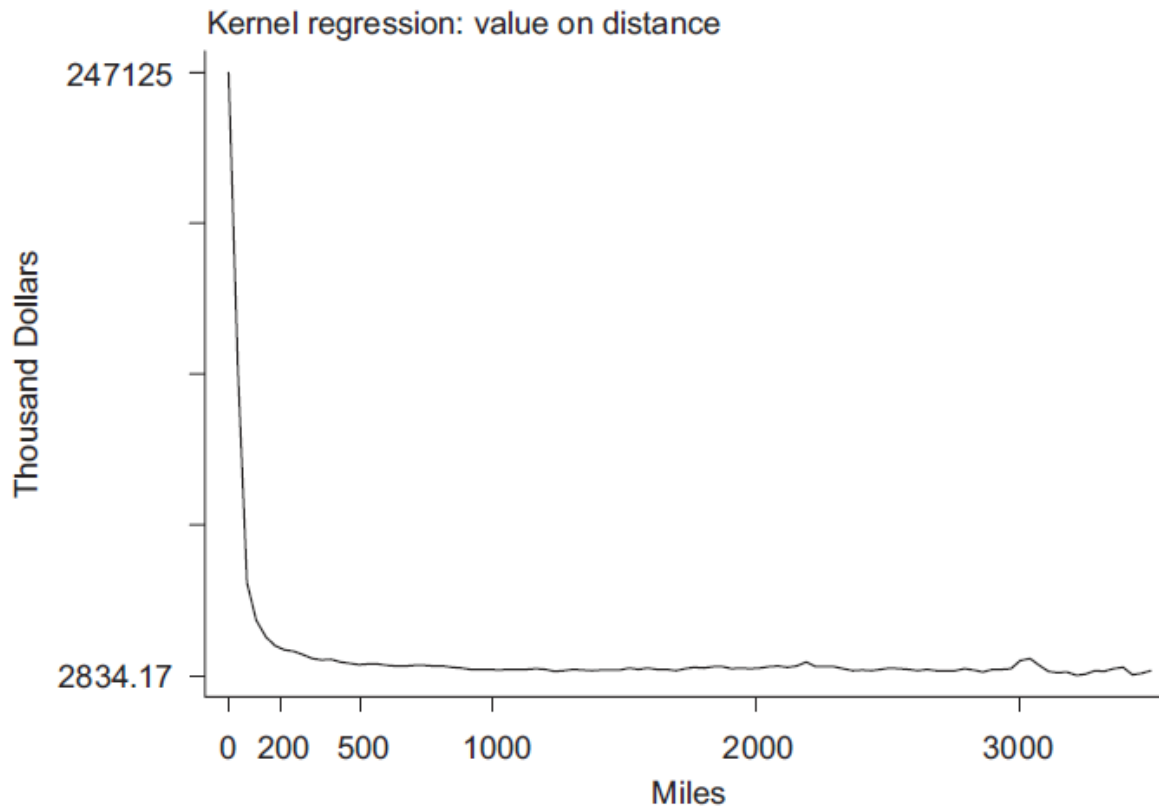
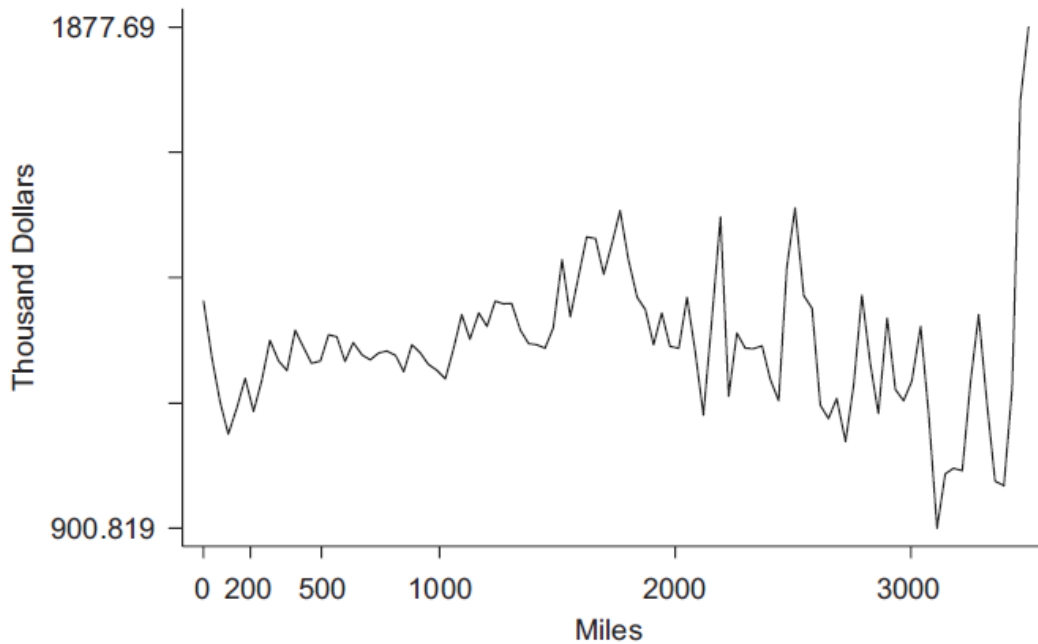
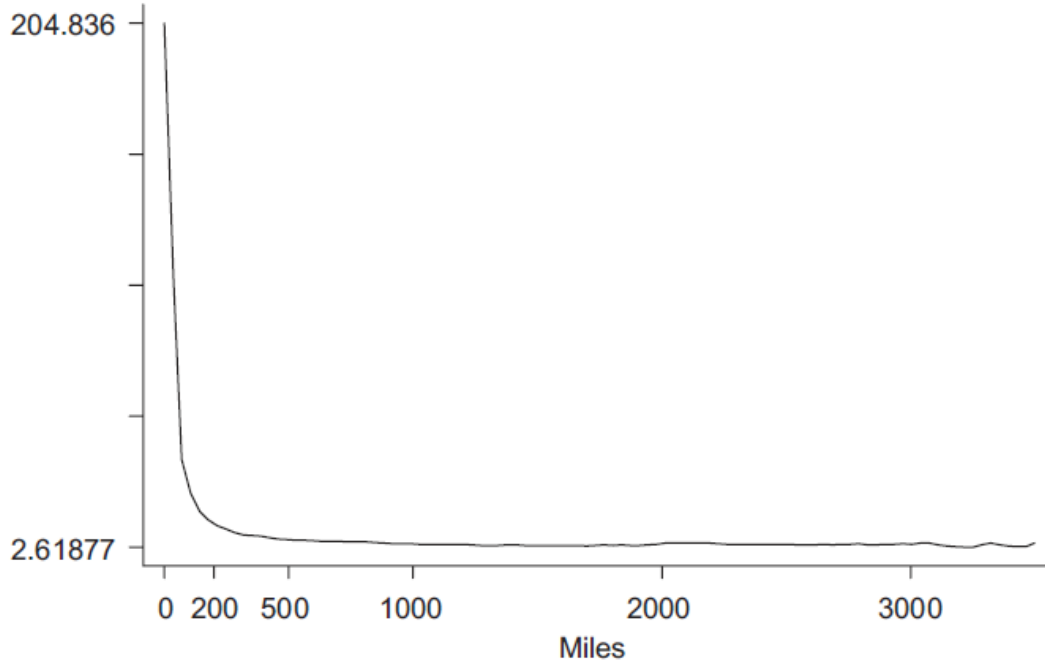


Fig. 1. Kernel regressions.

Kernel regression: average shipment value on distance



Kernel regression: number of shipments on distance



# But hasn't the internet changed all that?

Blum and Goldfarb (2006) find that gravity applies even to the internet.

“We show that gravity holds in the case of digital goods consumed over the Internet that have no trading costs. Therefore trade costs cannot fully account for the effects of distance on trade. In particular, we show that Americans are more likely to visit websites from nearby countries, even controlling for language, income, immigrant stock, etc. Furthermore, we show that this effect only holds for taste-dependent digital products, such as music, games, and pornography. For these, a 1% increase in physical distance reduces website visits by 3.25%. For non-taste-dependent products, such as software, distance has no statistical effect.”

**Note: Elasticity of 3.25%**

# More online evidence

- Similar evidence by Hortaçsu, Martínez-Jerez and Douglas (2009) on eBay and MercadoLibre.
- Direct contract enforcement may be important.
- But Lendle, Olarreaga, Schropp and Vézina (2016) find a smaller distance effect on eBay compared to standard international trade.

# Interpretation: The internet complements local activity

- How many times in the last month have you read a newspaper from Sydney, Australia?
- How many times in the last month have you googled a local restaurant or opening times of a local store?
- Who did you exchange WhatsApp messages with?

# Conclusion

- Distance is not dead. It's alive and kicking.
- Regionalisation has been a key feature of global trade since World War II.
- Lots of variation across industries. But on average the internet is perhaps best seen as a complement to local/regional physical activity.

# Notes

- Other papers that could be discussed potentially:
  - Berthelon and Freund (2008 JIE)  
<https://econpapers.repec.org/article/eeeinecon/v3a75/3ay3a2008/3ai3a23ap3a310-320.htm>
  - Harrigan (2010 JIE) on airplanes and comparative advantage  
<https://ideas.repec.org/a/eee/inecon/v82y2010i2p181-194.html>