Econ 330: Urban Economics

Lecture 3

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Lecture III: City Size & Growth

Schedule

Today

1) **Data & History**

2) **Why do Cities exist?**

3) **Introduction to Clustering**

Upcoming

- **Letter of Intro on Canvas**
- **Reading** (Chapter II & III *ToTC*)
- **HW 1** (due on Jan 23rd)

About HWI

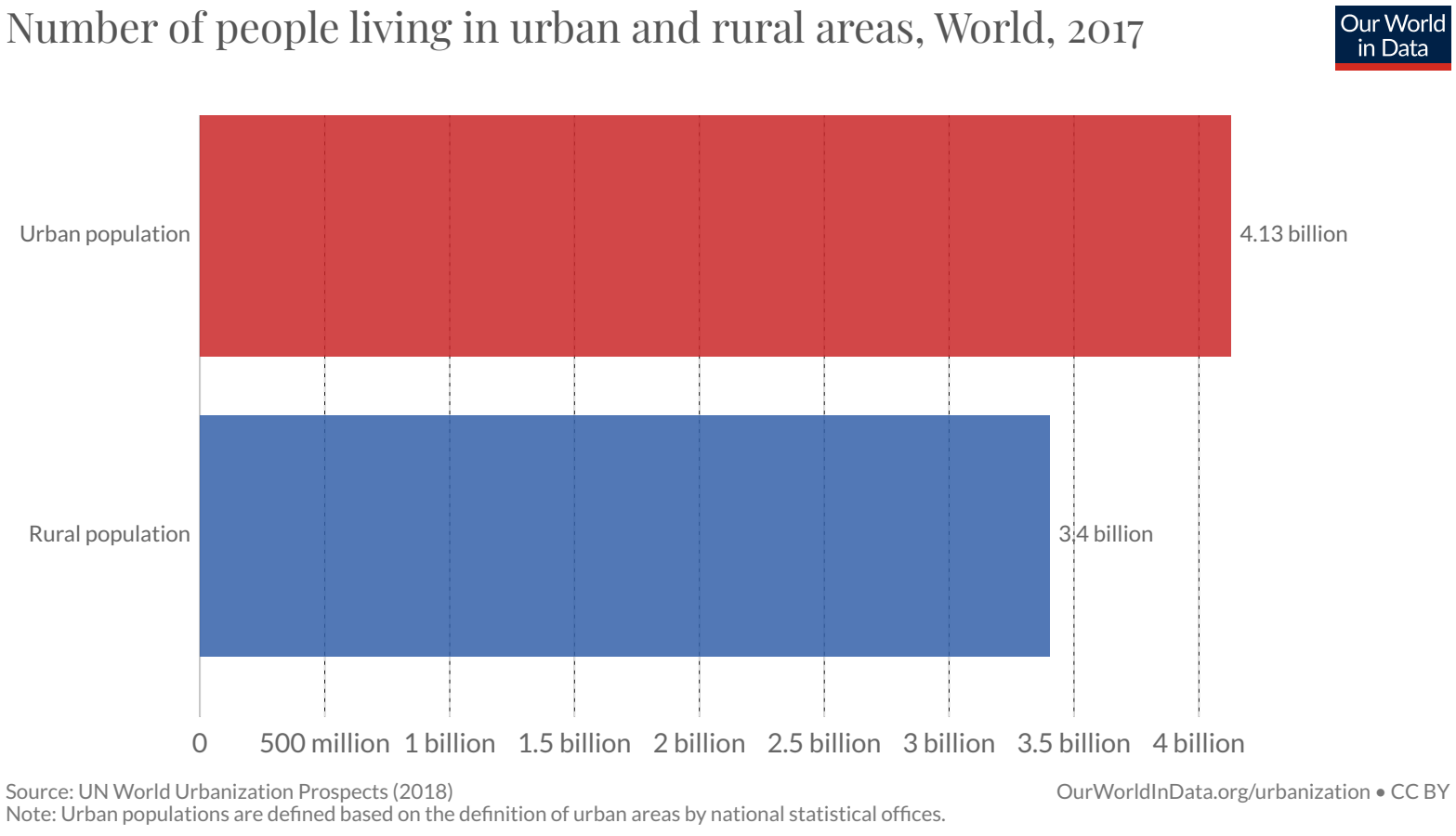
HW I will be posted after class (tonight or tomorrow morning)

- Due on **Jan 23rd** at the **start of class**
- HW I *looks* very long. I want to give everyone sufficient space to write their answers
- Majority of questions are from this week. One question from lecture 5 (next tuesday)

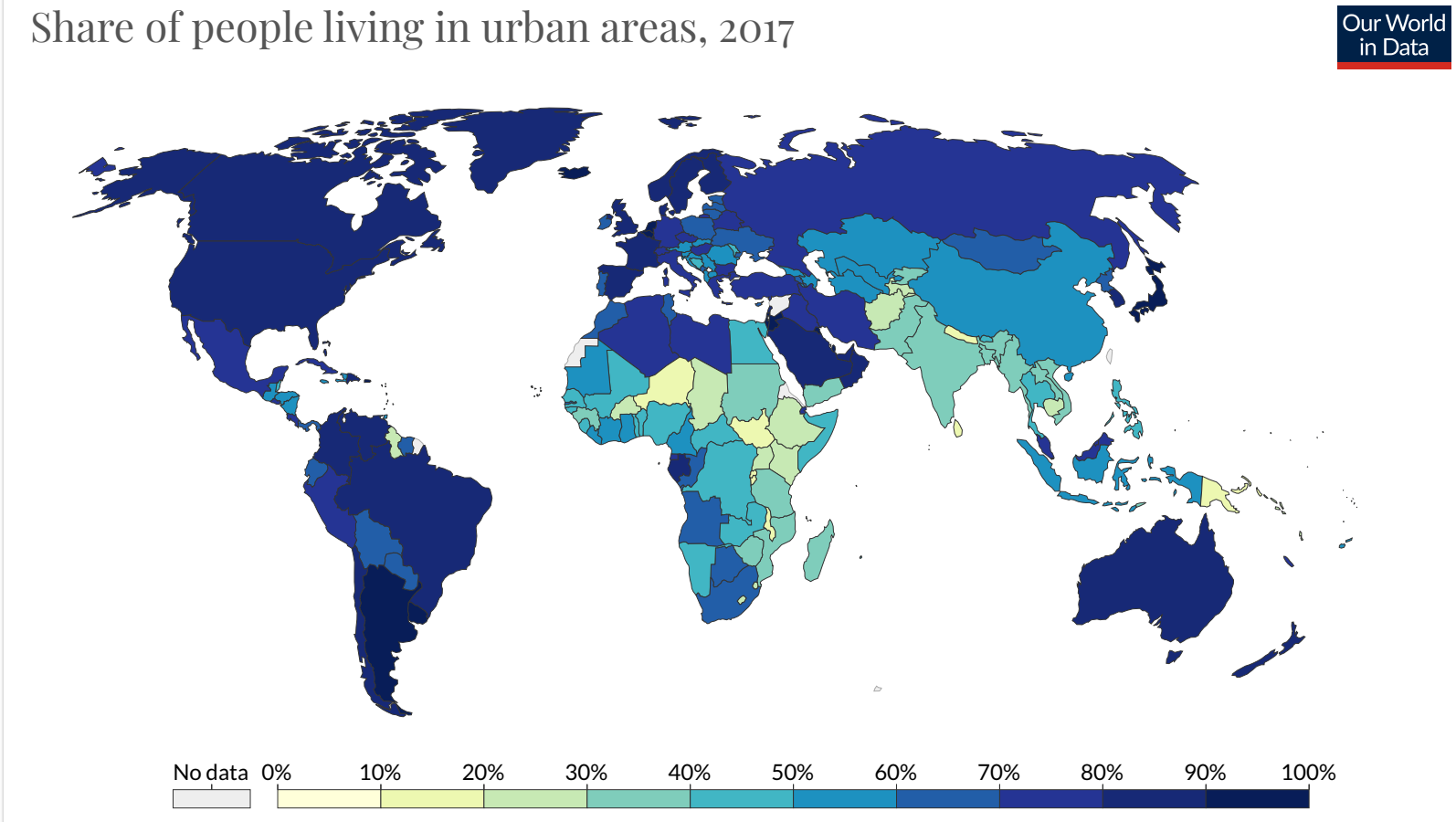
Important

- Print the assignment and turn it in on what you print out
- Use scratch paper first if needed. **Points will be deducted for messy work**

Most People Live in Cities



A Global Phenomena



And it is pretty recent

A Brief History Lesson

Claim

Over the last few hundred years the world *has become* **flat**

A Brief History Lesson

Claim

Over the last few hundred years the world *has become* **flat**

A Paradox

Q: What is the **paradox** between the things I have just discussed?

Checklist

1) **Data & History** ✅

2) **Why do Cities exist?**

3) **Introduction to Clustering**

Why do Cities Exist?

What do you think? **Discuss**

This question has a pretty simple answer. What is it?

Trade

with a few caveats...

Suppose there was **no trade**. What would we need for this to be true?
Would this lead to no cities?

No Cities

1) No differences in **productivity** of **land** *or* **labor**

2) Constant Returns to Scale (CRS) in **Exchange** & transportation

3) CRS in **Production**

Implications?

1. **No exchange**
    - Everybody is equally productive and all land is the same
2. **No cities**
    - Dense living is costly (higher land prices). No benefit

Relax Assumption 1

Question: Is all land and labor equally productive?

Back to 201

Reminder:

- **Absolute Advantage** (AA): An economic agent or entity has **AA** in exchange if they can produce more of the good in the same amount of time
    - or the same amount of the good in less time
- **Comparative Advantage** (CA) : An economic agent or entity has **CA** in exchange if they can produce the good at a lower *oppurtunity cost*

Production Possibilities Frontier (PPF): All possible combinations of goods that an economic agent or entity can produce

PPF's

Example:

- Suppose we have two countries, A & B. They are producing guns and oil

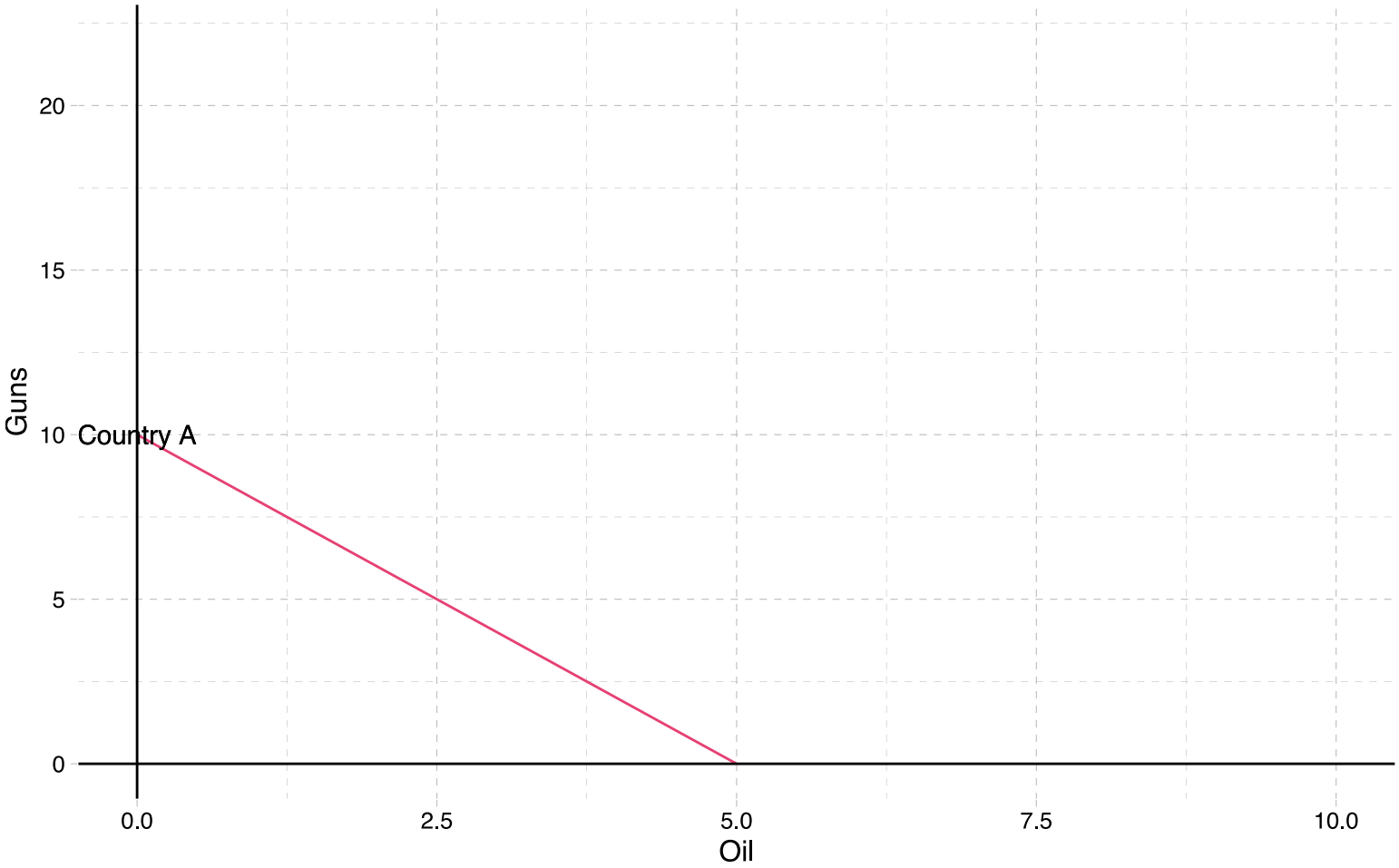
Each counties PPF is *given* by:

- **County A**: $Guns_A = 10 - 2 * Oil_A$
- **County B**: $Guns_B = 20 - 5 * Oil_B$

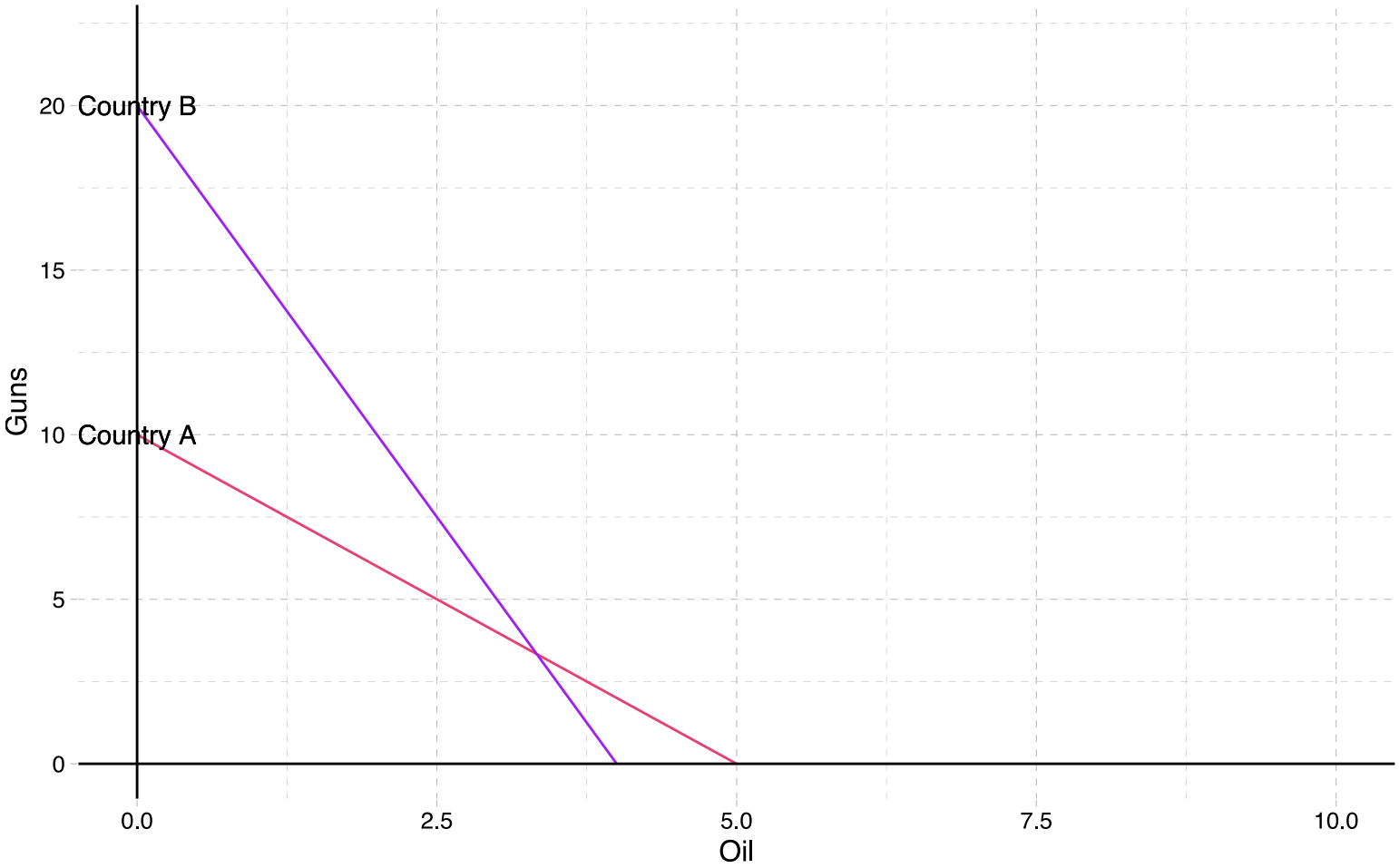
1) Graph each countries PPF

2) Determine who has the AA in each good and who has the CA in each good

PPF's



PPF's



PPF Heuristics

When looking at PPF's, to determine:

1) **AA**: Check **intercepts**

- Whoever has higher - valued **intercept** has the **AA** in production of that good

2) **CA**: Check **slopes**

- A **steeper** **slope** indicates **CA** on the vertical axis
- A **shallower** **slope** indicates **CA** on the horizontal axis

Relax Assumption 2

In absence of scale economies, households trade directly[†]

- **Scale economies**: trading firm's are beneficial
- Workers do not like commuting $\Longrightarrow$ they live close to firm
  - **Land prices** are bid up
- Higher price of land increases density $\Longrightarrow$ city!

[†] Scale economies: *bigger* $\rightarrow$ *cheaper per unit*

Relax Assumption 3

Suppose we do not have CRS

- This means the cost per unit of production changes as quantity changes

Example

Consider a shirt making factory

Factory Towns

Under what condition will a consumer purchase the shirt from a factory over home?

Questions:

1. Graph the cost of shirts throughout the entire region
2. Find the **market area** of the town
    - Find the **maximum distances** to the east and west that consumers will purchase the shirt from the factory

Regional Costs

Market Area Calculation

Market area depends on which side we are looking at. Let m denote miles

Factory Towns

1) Would workers rather live **closer** or **further** from the factory?

2) What happens to land-prices **close** to the factory?

3)ith What happens to **density**?

Checklist

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Clustering

So we explained *why* cities exist. Can we explain their size?

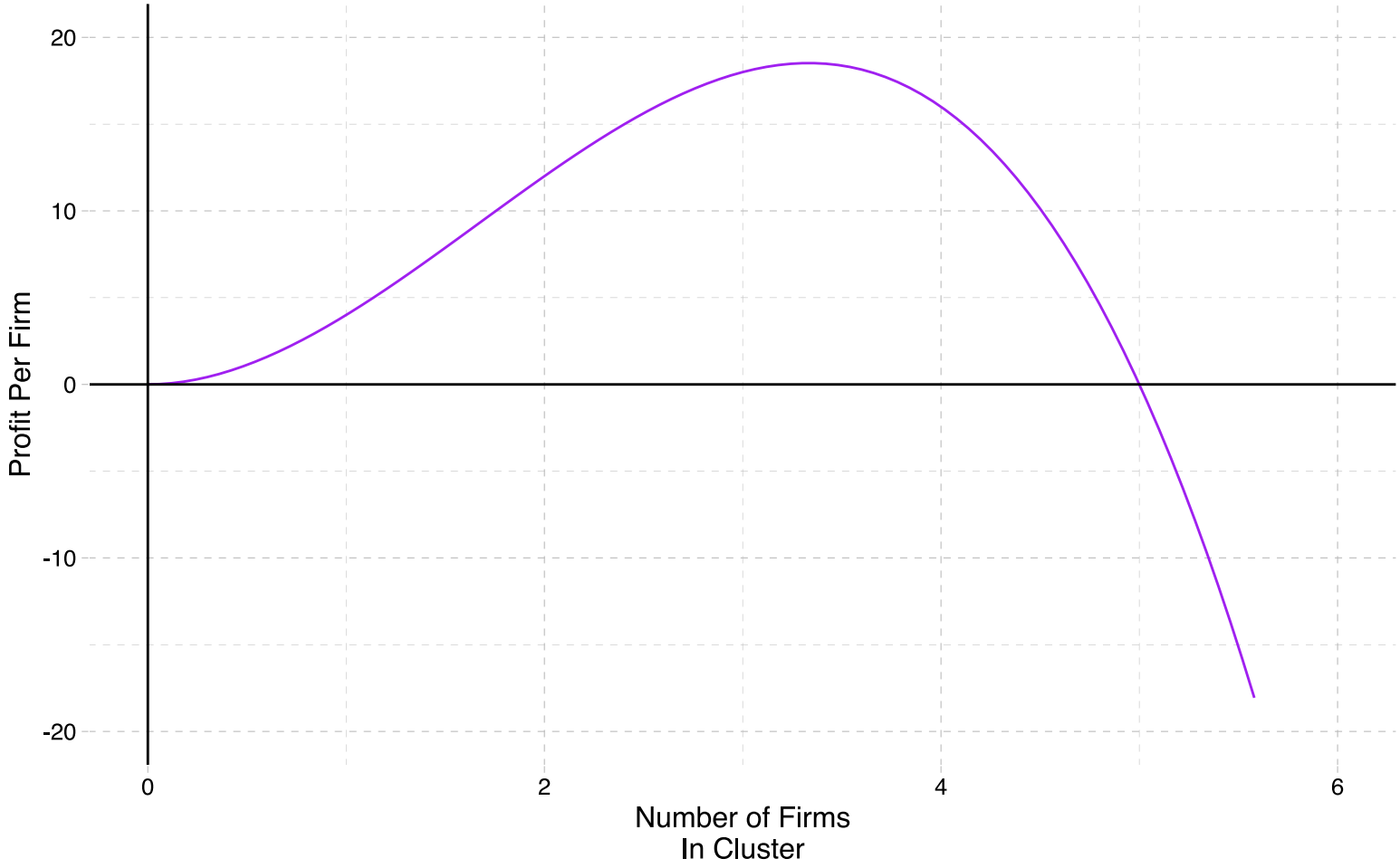
- Let's start by asking why firms cluster. Where to start? **Axiom 5**

Axiom 5: ***Competition generates zero economic profit***

- If a firm is making positive economic profit, more firms enter the market
- What happens to the profit per firm as more firms enter?
- It decreases. Eventually goes to zero

Example

How many firms are in the cluster?



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