

# Foreign Direct Investment & Major Choice

Evidence from Costa Rica

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# Motivation

- Economic growth is pushed forward by the accumulation of physical and **human capital** ([Romer, 1990](#); [Caballé and Santos, 1993](#); [Barro, 1996, 2003](#))
- Developing economies have increasingly attracted more FDI in recent years [▶ World Bank](#)
- Evidence on how trade and educational attainment levels interact ([Atkin, 2016](#); [Blanchard and Olney, 2017](#))

## Does the Presence of Multinational Corporations Influence Major Choice?

- Leverage industry-district-year variation in MNC presence to look at field-of-study choice effects for individuals

### Empirical Strategy

- Create Gravity Model-inspired MNC Presence Index at industry-district-year level
- Group individual majors creating broad field-of-study categories
- Look at within field-of-study choices for more detailed analysis

- Heterogeneity in effects across industry and field-of-study
- Service industries are more relevant in the field-of-study choice
- Look at more narrow categories suggests sorting based on likely transferable skills

# Contribution

- Contributes to literature on determinants of college major choice
  - Wages (Carneiro et al., 2011; Arcidiacono et al., 2012, 2020; Beffy et al., 2012; Carroll et al., 2014; Kirkeboen et al., 2016; Bleemer and Mehta, 2022)
  - Non-pecuniary (Altonji, 1993)
  - Ability and Preference Sorting (Arcidiacono, 2004; Kinsler and Pavan, 2015)
  - Information Availability (Jensen, 2010; Kaufmann, 2014)
- Literature on larger trade/FDI effects: (Feenstra and Hanson, 1997; Atkin, 2016; Blanchard and Willmann, 2016; Alfaro-Ureña et al., 2021)

- Public universities require applicants to list their 2 preferred majors when applying
  1. Helps construct a demand for major, rather than observing equilibrium enrollment outcomes
  2. Applicants submit relevant demographic information
- Costa Rica provides incentives for FDI inflows through their Free Trade Zone (FTZ) regime [▶ Graph](#)
  1. Firms are located inside an FTZ dedicated industrial park
  2. The FTZ regime has become a significant portion of all FDI entering Costa Rica (>60% of all FDI \$'s in the last 5 years) [▶ Graph](#)

- Administrative university application data from 2007 to 2020
    - Preferred Major Choice
    - Age and Sex
    - Entry Score
    - High School Type
    - District-Canton of Residence
  - Firm-level data from Costa Rica Foreign Trade Promoter
    - 68 unique ISIC4 4-digit Economic Activity Codes
    - 348 firms
    - Year-of-Entry
    - District-Canton of Operation
- 379,316 observations from 2007 to 2020<sup>†</sup>

Using a Gravity Model approach, I construct a district-year MNC Presence Index as follows:

$$\Gamma_{djt} = \sum_{d'} \frac{S_{d'jt}}{\exp(\tau_{dd'})} \quad (1)$$

## Subscripts

$d$  = applicant district,  $d'$  = firm district,  $j$  = industry,  $t$  = year

- $S_{d'jt}$ : Stock of firms in district  $d'$  of industry  $j$  in year  $t$
- $\exp(\tau_{dd'})$ : Distance (in km) between district  $d$  (applicant residence) to district  $d'$  (firm residence)