

Refugee Matching

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David Delacretaz (University of Oxford)

Will Jones (Royal Holloway University)

Scott Duke Kominers (Harvard University)

Alessandro Martinello (Lund University)

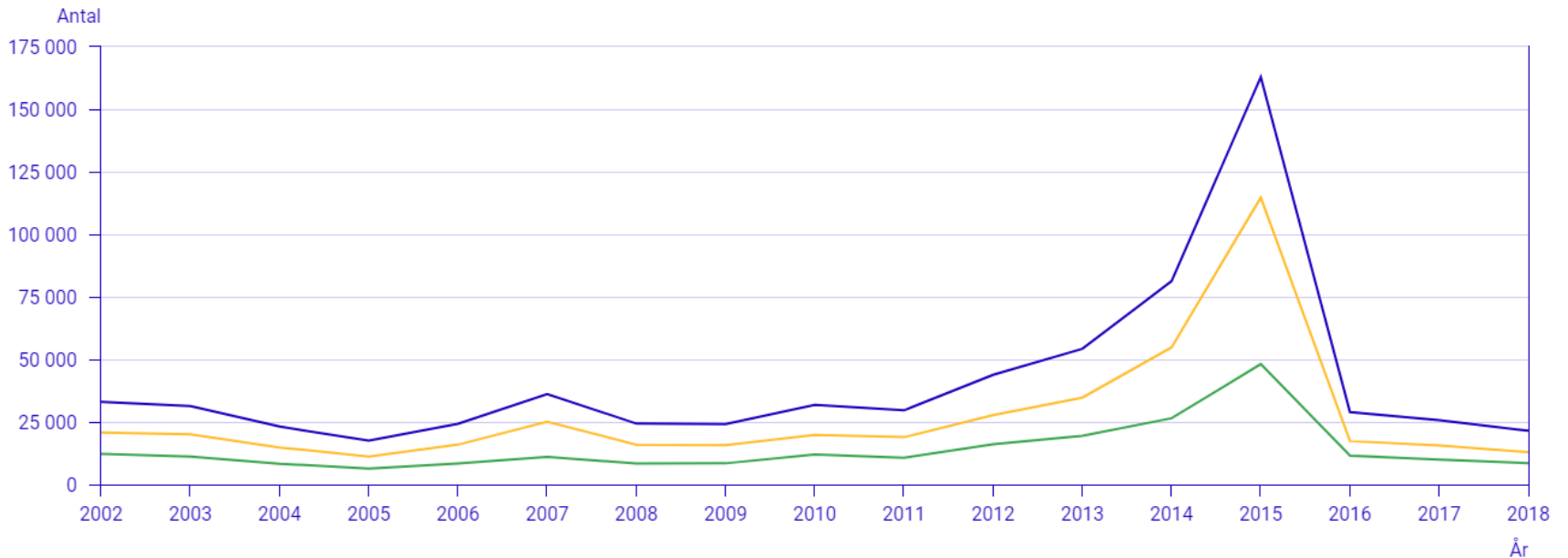
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Andrew C. Trapp (Worcester Polytechnic Institute)

Asylum seekers in Sweden, 2002-2018

Asylsökande efter kön per år från år 2002

⬇ Spara som.. 🖨 Skriv ut 📄 Visa som tabell



Diagramförklaring

- Totalt
- Kvinnor
- Män

Källa

Asylsökande efter kön och år, SCB
[Sveriges officiella statistik](#)

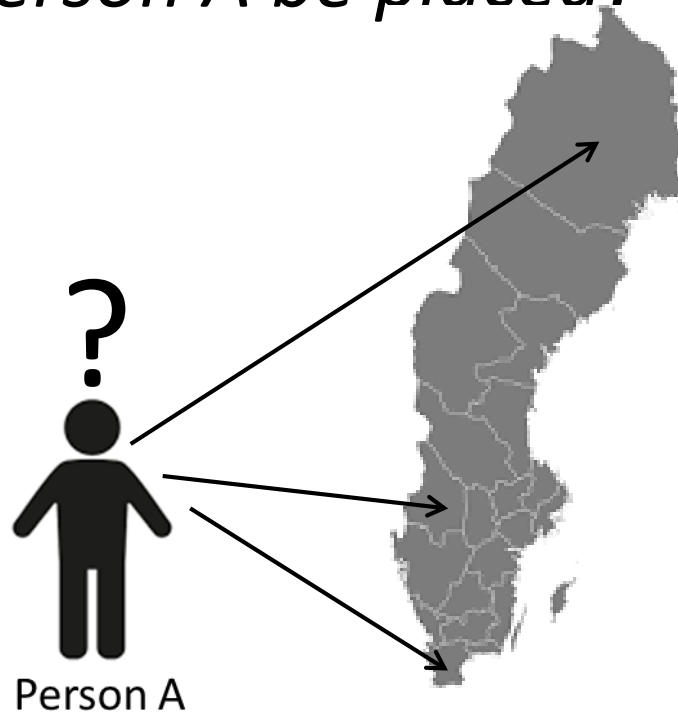
The first immigrant recorded at Ellis Island
in 1892

Annie MOORE (Matching and Outcome
Optimization for Refugee Empowerment)



Annie MOORE (the software)

- The computer software Annie MOORE answers the following question: *where in a country should person A be placed?*



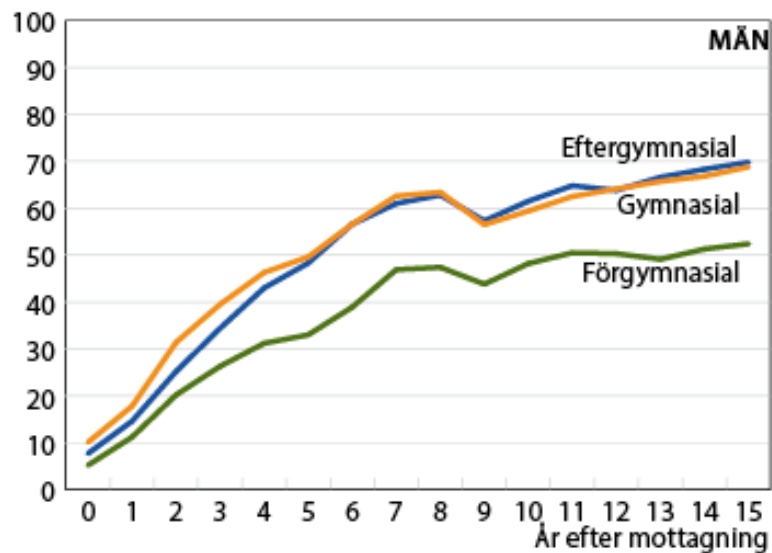
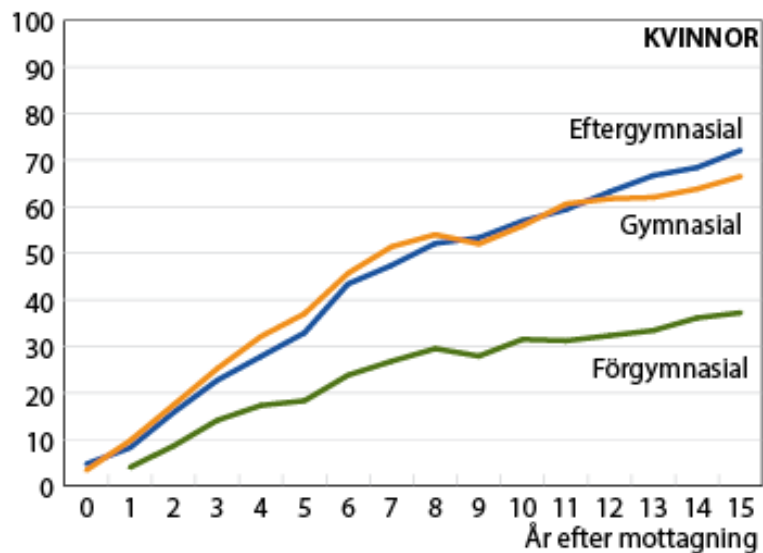
Key integration factors

- “There is no single, generally accepted definition, theory or model of immigrant and refugee integration” (Castles et al., 2002)
- Examples: employment, housing, education, demography, social networks, health, etc.
- We focus on **employment** in the remaining part of the talk

Employment (time matters)

Andelen förvärvsarbetande ökar med tid i Sverige

Andel förvärvsarbetande män och kvinnor efter tid sedan mottagning och utbildningsnivå. Flyktingar och flyktinganhöriga kommunmottagna under år 2000. Procent

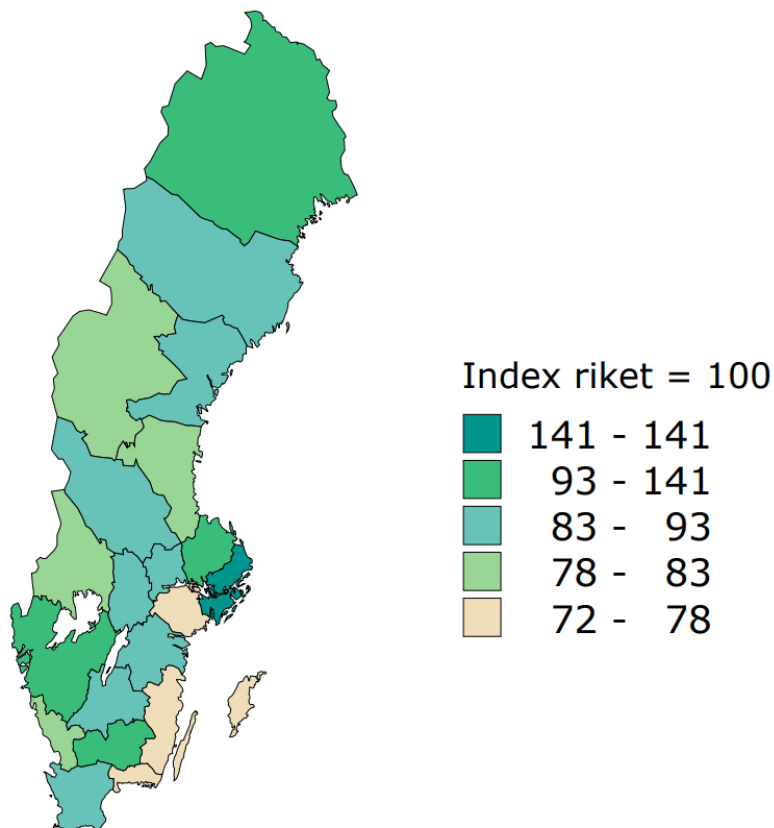


Employment (macro and micro)

- Empirical evidence that initial match between refugee and region matters for employment, welfare and education
- Macro vs micro:
 - *Regions* have different characteristics (industry structure, employment rates, growth,...)
 - *Refugees* have different characteristics (age, gender, education, spoken languages, work experience,...)

Employment (region matters)

Bruttoregionprodukt per invånare 2016



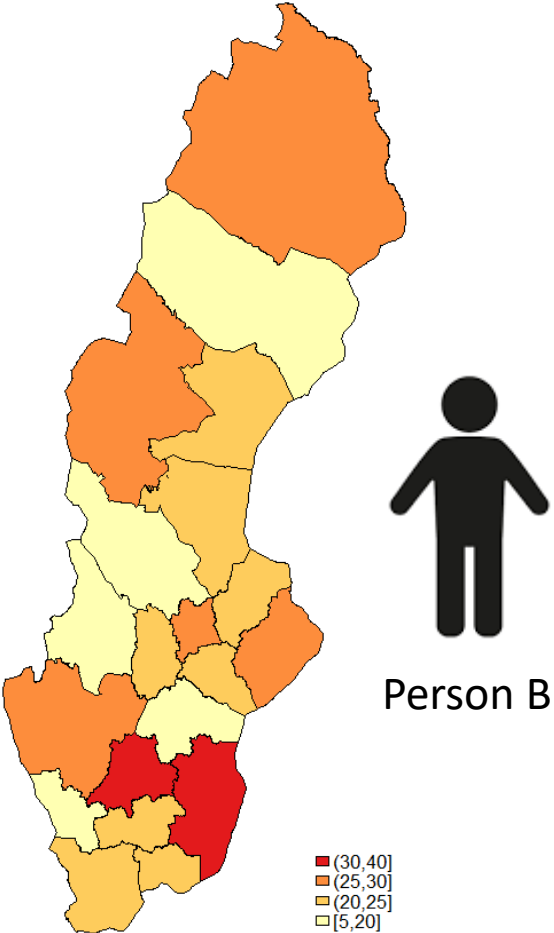
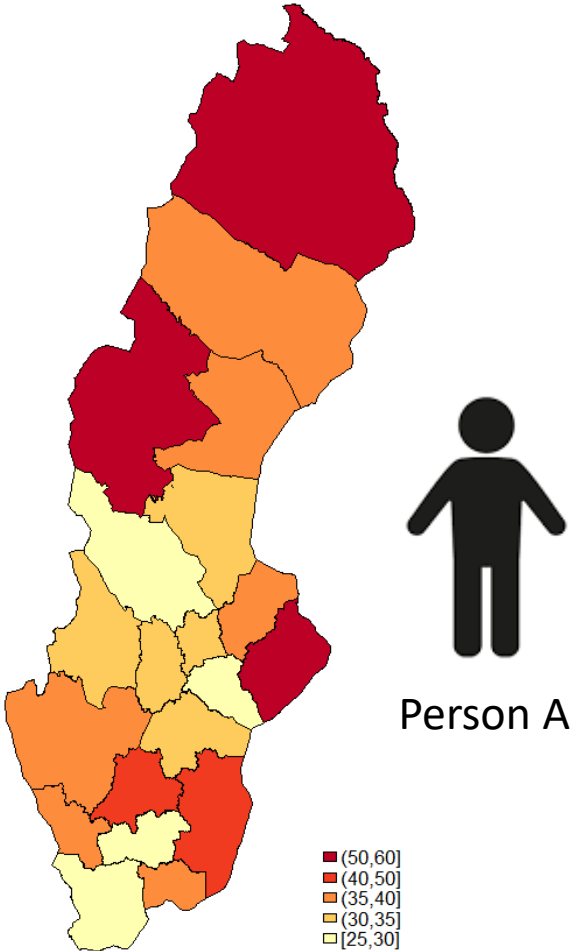
Källa: Statistiska centralbyrån

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Employment (macro and micro)

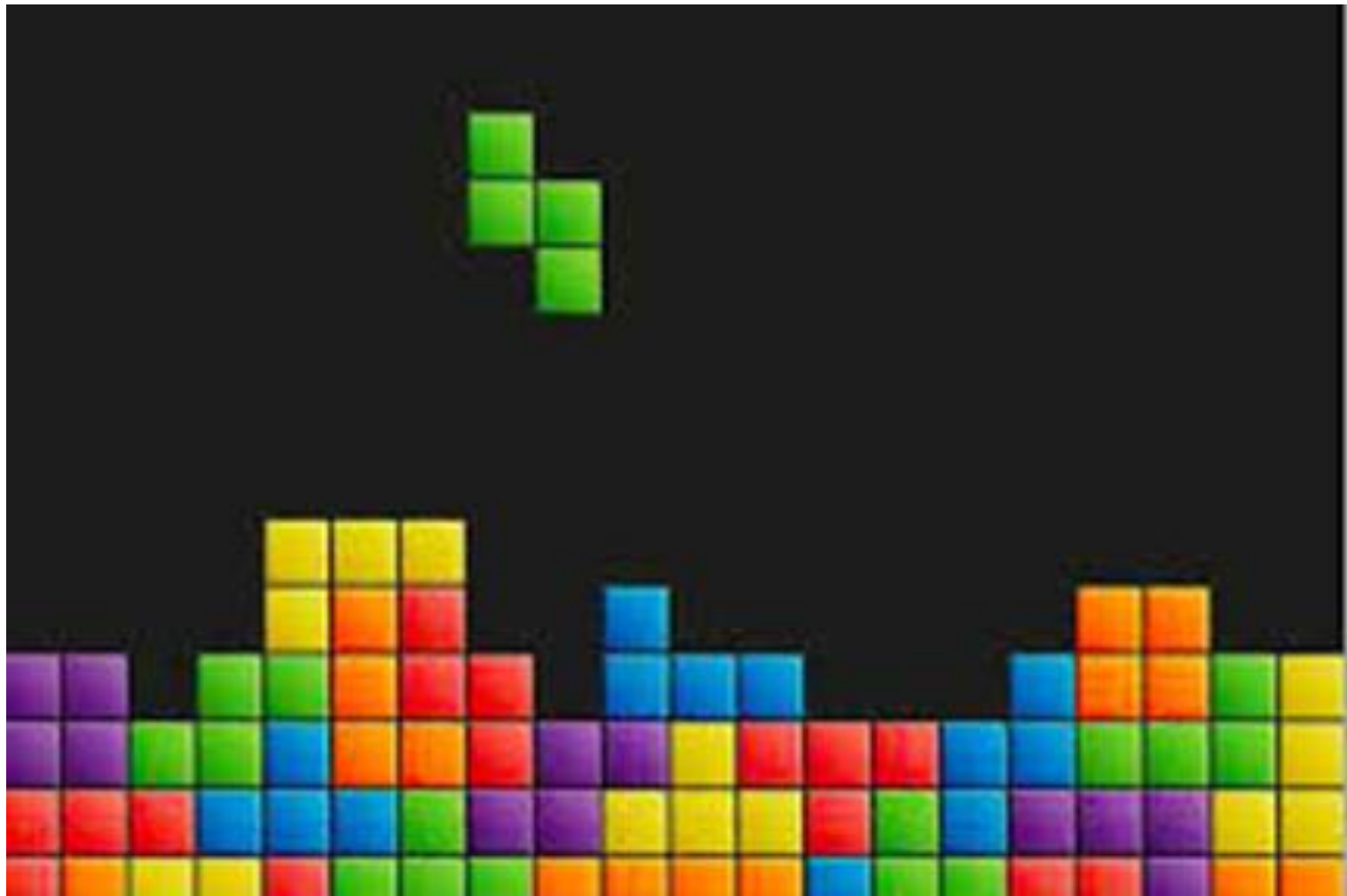
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 - *Regions* have different characteristics (industry structure, employment rates, growth,...)
 - *Refugees* have different characteristics (age, gender, education, spoken languages, work experience,...)

Employment (individual characteristics matter)



The underlying idea

- Both macro and micro factors influence the probability for a refugee to get employment
- Note also: regional capacities and service provision (schooling, housing, health care,...) are limited



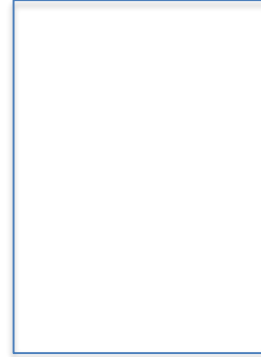
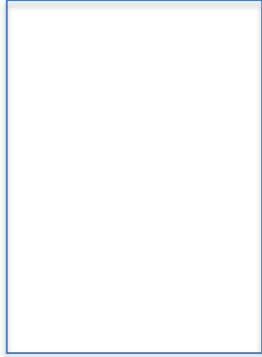
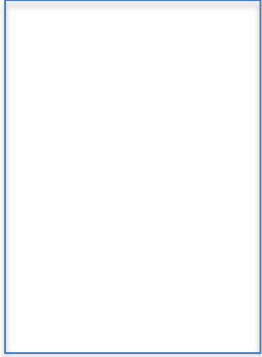
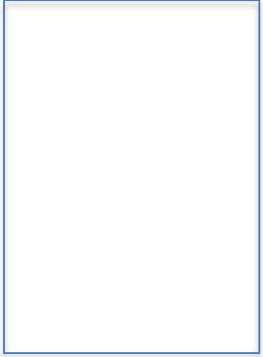
F^1

F^2

F^3

F^4

F^5



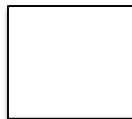
L^1



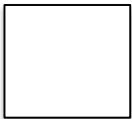
L^2

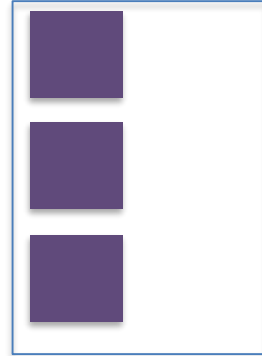
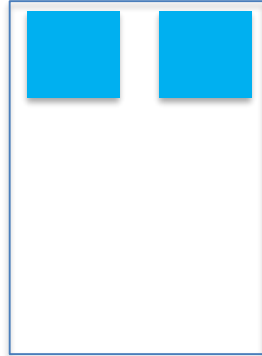
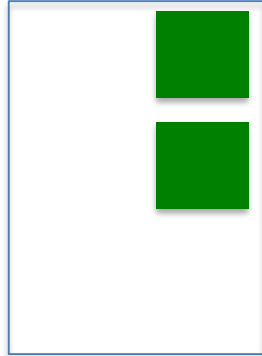
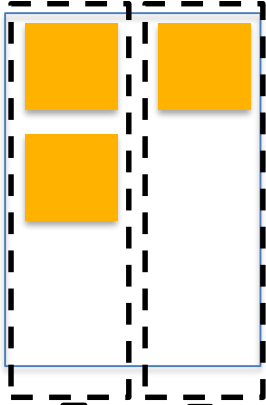
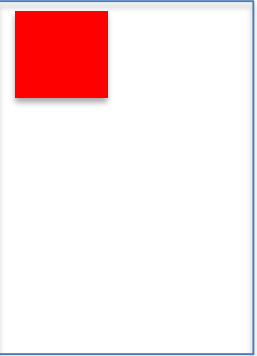
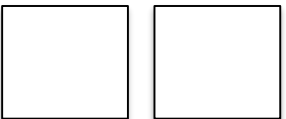
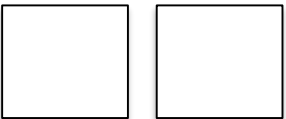
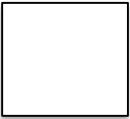
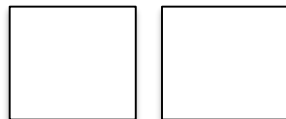
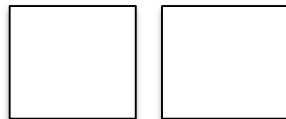
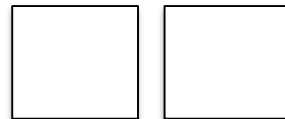


L^3



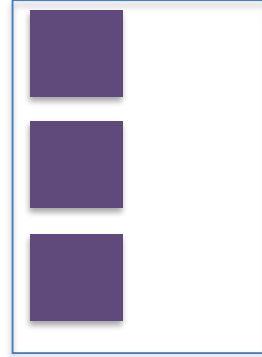
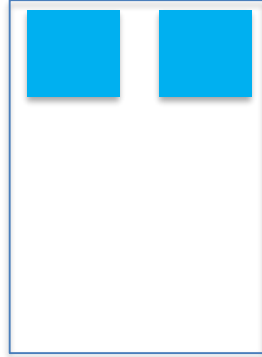
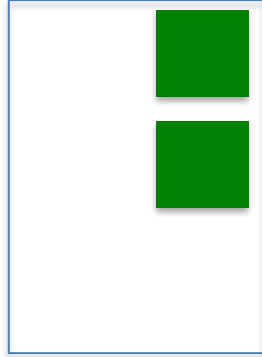
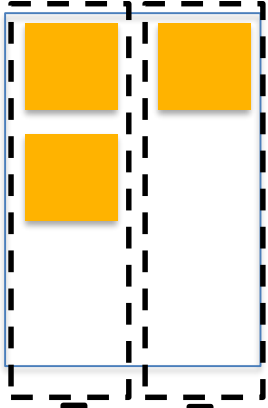
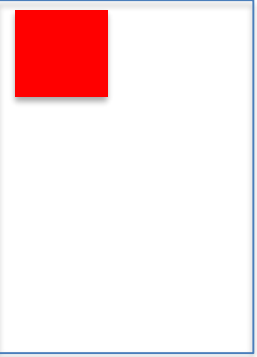
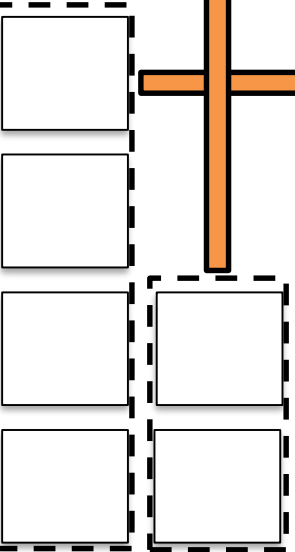
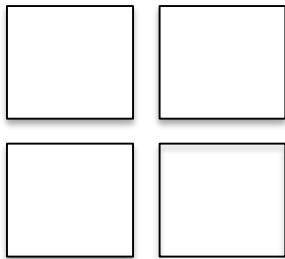
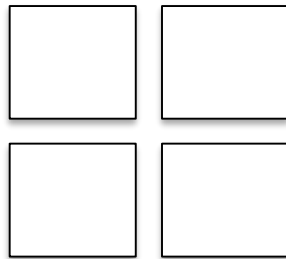
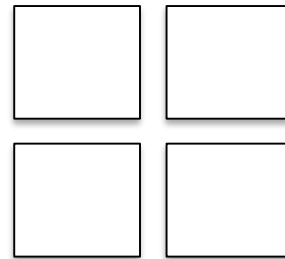
L^4



F^1 F^2 F^3 F^4 F^5  L^1  L^2  L^3  L^4 

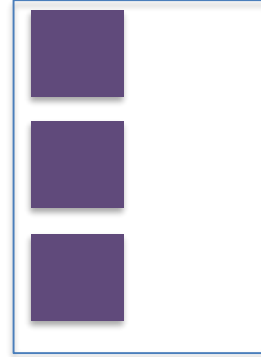
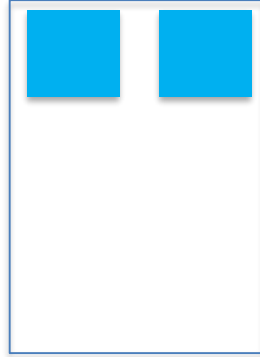
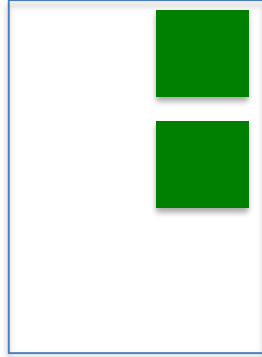
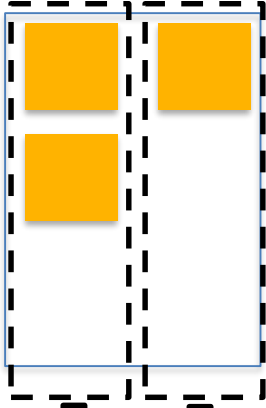
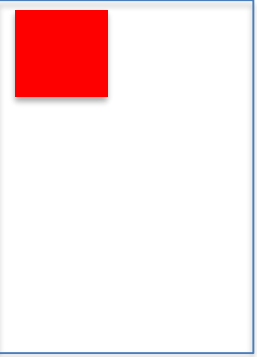
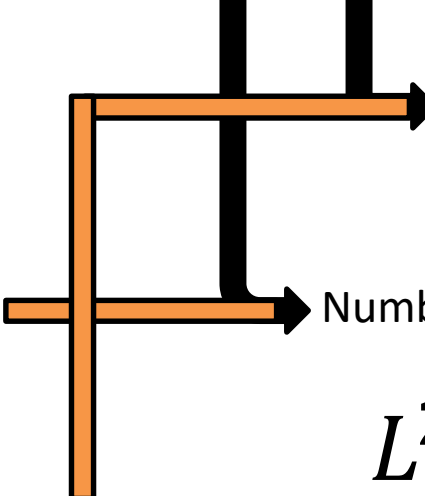
Units of advanced health care needed

Number of school seats needed

F^1 F^2 F^3 F^4 F^5  L^1  L^2  L^3  L^4 

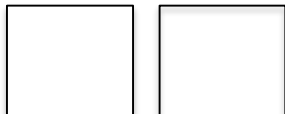
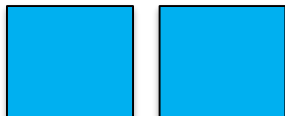
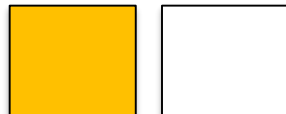
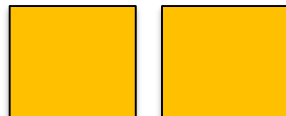
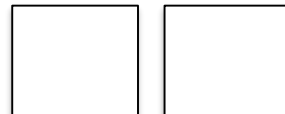
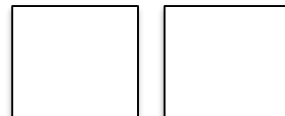
Units of advanced health care needed

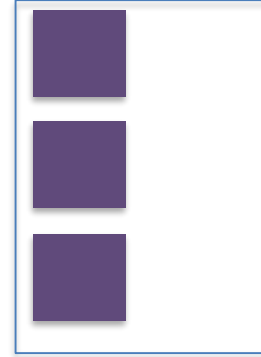
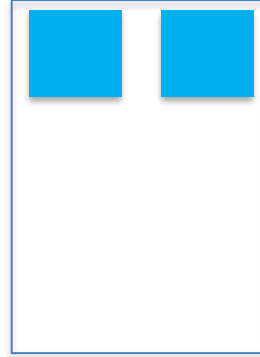
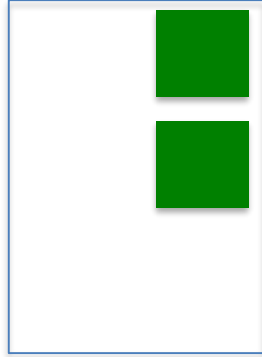
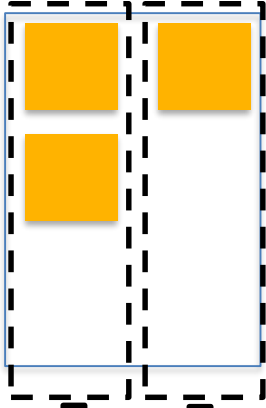
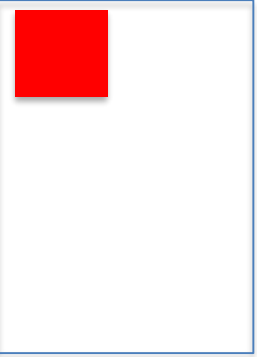
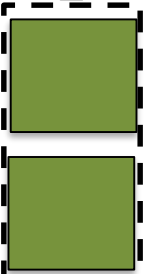
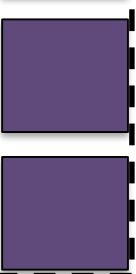
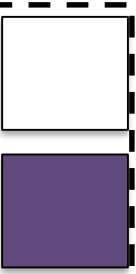
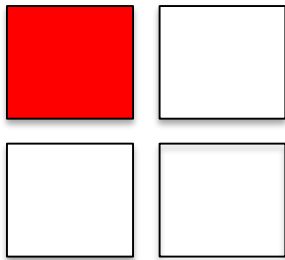
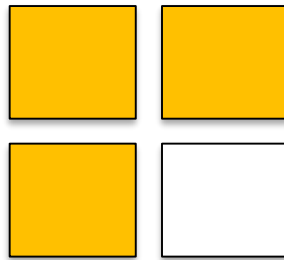
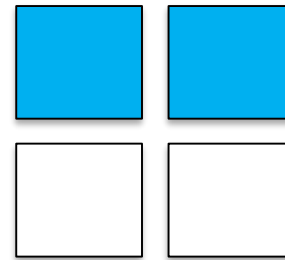
Number of school seats needed

F^1 F^2 F^3 F^4 F^5  L^1 

Units of advanced health care needed

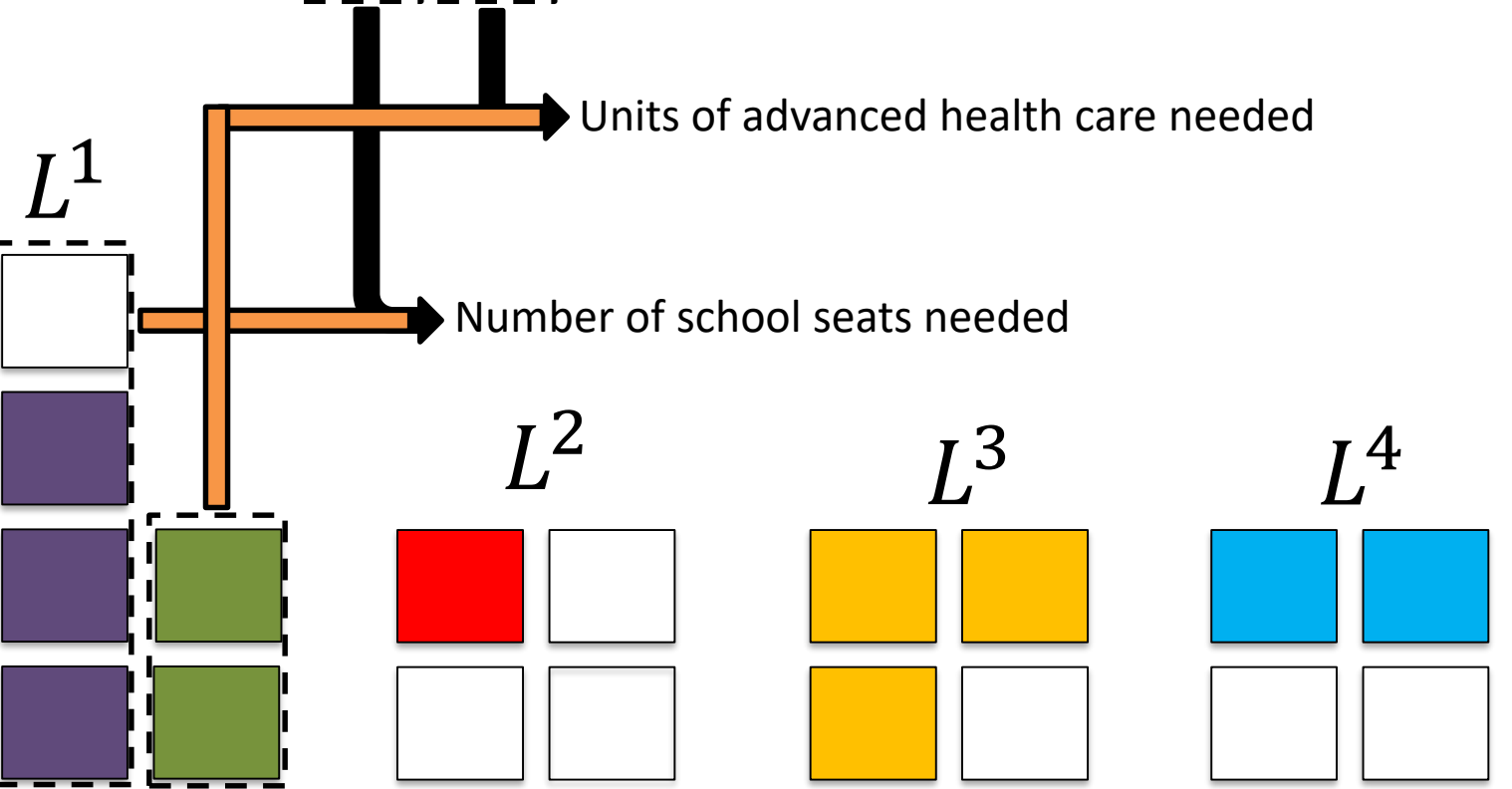
Number of school seats needed

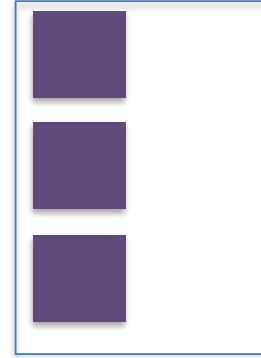
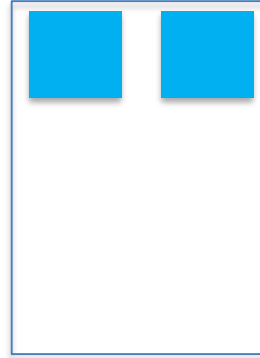
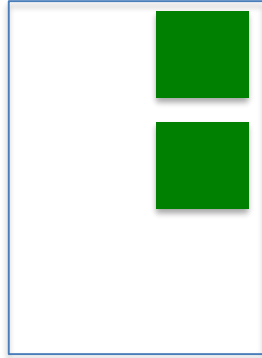
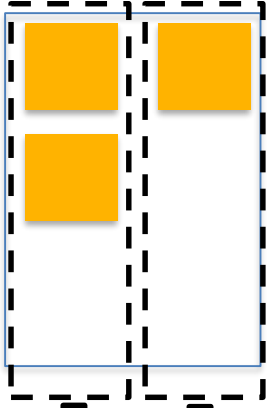
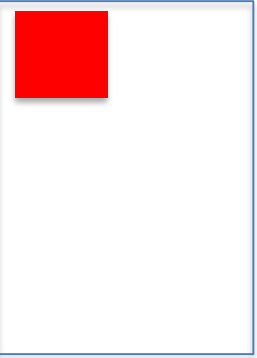
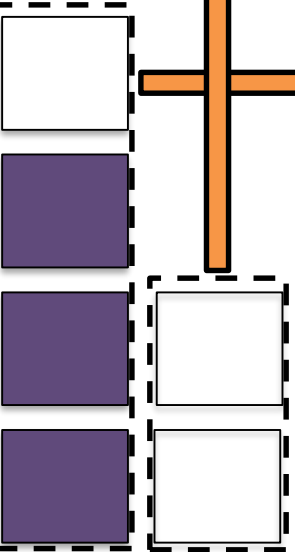
 L^2  L^3  L^4 

F^1 F^2 F^3 F^4 F^5  L^1  L^2  L^3  L^4 

Units of advanced health care needed

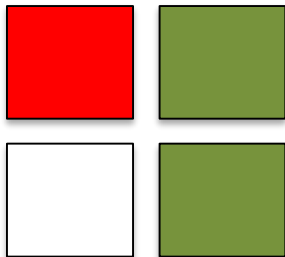
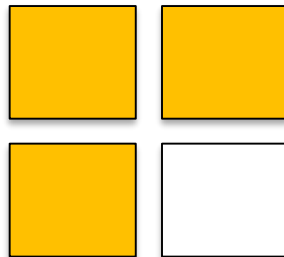
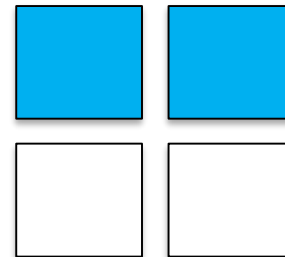
Number of school seats needed



F^1 F^2 F^3 F^4 F^5  L^1 

Units of advanced health care needed

Number of school seats needed

 L^2  L^3  L^4 

Annie MOORE



- Annie MOORE integrates **machine learning** (“*expected probability of employment*”) and **integer optimization** techniques (“*service provision*”) into an innovative software tool that assists agencies with matching refugees to their initial placements

Sweden vs USA

- Before Alex starts talking, note that:
 - We don't have data for Sweden (i.e., we will not be able to say anything about Sweden)
 - We only discuss refugees resettled by HIAS in the US
 - Huge differences between US and Sweden:
 - More flexible labour markets in the US
 - Different legislation (e.g., EBO in Sweden)
 - Different welfare systems
 - Etc.