

# Regional Concentration and Migration of Human Capital: Evidence from Finland and Sweden

Finland and Sweden show striking similarities regarding concentration of highly educated workers to larger urban labour markets and to some regions with relatively large universities. The shares of university graduates have increased in all labour market areas regardless of their population size. Internal migration plays a major role for increased regional concentration of human capital in both countries. The reallocation of recent university graduates from the smaller to the largest labour markets is substantial in both countries.

## Introduction

- Recent economic and political events underscore the need for basic facts and further investigation on regional inequality in economic conditions.
- We present long-term trends and recent developments in Finland and Sweden regarding:
  - The regional patterns in shares of highly educated in the workforce;
  - The magnitude of changes in the regional distribution of human capital;
  - The role of interregional migration for changes in the geographical distribution of highly educated.
- Our comparative approach is facilitated by access to comparable population register data of high quality.

## Data and definitions

- We use data on the entire populations of Finland and Sweden that originate from various registers administered by Statistics Finland and Statistics Sweden.
- Local labour market areas (LMAs) are defined using commuting flows between municipalities (126 Finnish and 69 Swedish LMAs).
- We also further aggregate the LMAs into three larger regions based on their size:
  - Large regions (Helsinki, Stockholm, Göteborg and Malmö);
  - Medium-sized regions are LMAs with total population minimum of 100,000 inhabitants (10 in Finland and 19 in Sweden);
  - Small regions are LMAs with population less than 100,000 inhabitants (115 in Finland and 47 in Sweden).
- The medium-sized regions typically are regional administrative centres and contain universities/polytechnics located outside the metropolitan regions.
- By long university education, we refer to the bachelor's and master's degrees from polytechnics and universities.

## Results

### Regional differences in shares of highly educated

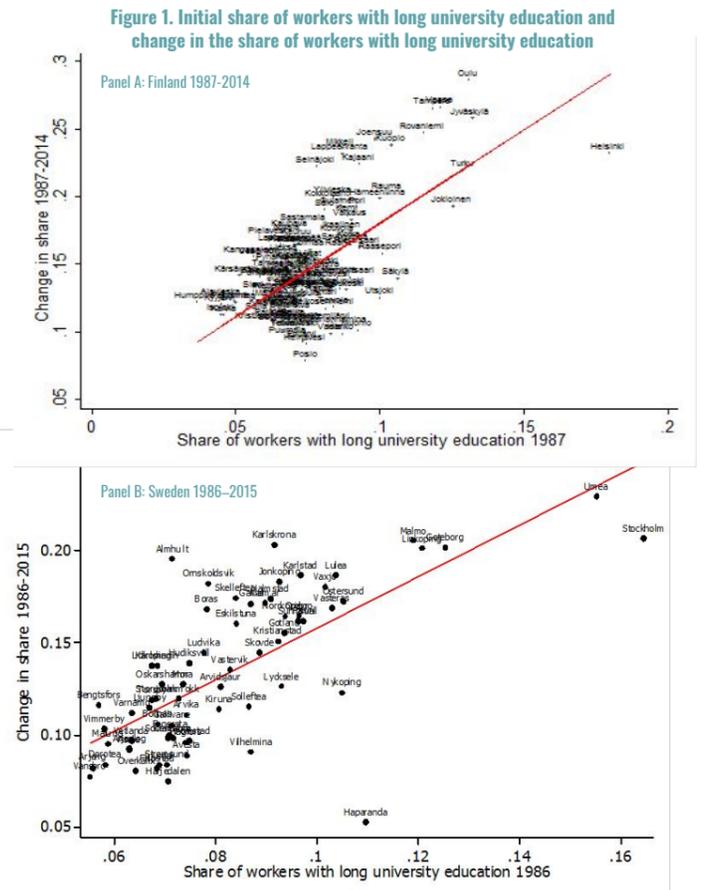
- The expected positive correlation between the labour market size and the share of highly educated workers is confirmed for both countries: the correlation is similar for both countries.
- Thus, the highly educated workers are most concentrated to the biggest labour markets.

### Changes in shares of highly educated

- Figure 1 shows that although the share of highly educated workers has increased from mid-1980s to mid-2010s in all LMAs in Finland and Sweden, there has been a clear tendency for regional divergence in the shares of university-educated workers over time.
- The changes in the share have been larger in the LMAs that already had high share of university-educated workers.
- The positive relationship is stronger in Sweden (the correlation coefficient is 0.71) than in Finland (0.53) but the estimated linear predictions similar for the two countries (i.e. relationship is similar).

### Regional patterns of changes in populations of university graduates and the contribution of migration

- We also compare the place of residence before tertiary education with post-education location for all individuals who have graduated from at least three years of tertiary education in 2001–2010 (Table 1).
- The impact of interregional migration is striking. In both countries, university graduate in-migration to the metropolitan areas has been large in absolute and relative terms. Because simultaneously their out-migration from metropolitan regions has been small, these regions have managed to increase their population of university graduates substantially.
- In-migration to the medium-sized regions has been much greater in Finland than Sweden, but out-migration has been similar in both countries. Because of large in-migration, net migration to medium-sized regions in Finland has been positive, whereas the corresponding figure is negative for Sweden.
- Small regions are not able to attract university graduates in either countries.



Notes: Data are for local labour markets and based on the location of the workplace. Share of workers with long university education refers to prime-aged workers (aged 25–54) and defined as at least three years of tertiary-level education.

Table 1. Components of change in number of university graduates by type of region, 2001–2010.

|                         | (1)<br>Starters | (2)<br>In migrants | (3)<br>Out migrants | (4)=(2)-(3)<br>Net migration | (5)=(1)+(4)<br>Finishers |
|-------------------------|-----------------|--------------------|---------------------|------------------------------|--------------------------|
| <b>Panel A: Finland</b> |                 |                    |                     |                              |                          |
| <i>Counts</i>           |                 |                    |                     |                              |                          |
| Large regions           | 69,640          | 57,817             | -7,094              | 50,723                       | 120,363                  |
| Medium-sized regions    | 108,934         | 46,763             | -34,946             | 11,817                       | 120,751                  |
| Small regions           | 120,833         | 9,871              | -72,411             | -62,540                      | 58,293                   |
| <b>Panel B: Sweden</b>  |                 |                    |                     |                              |                          |
| <i>Counts</i>           |                 |                    |                     |                              |                          |
| Large regions           | 109,335         | 54,755             | -9,580              | 45,175                       | 154,510                  |
| Medium-sized regions    | 97,469          | 19,106             | -42,428             | -23,322                      | 74,147                   |
| Small regions           | 41,670          | 5,150              | -27,003             | -21,853                      | 19,817                   |

Notes: Data include all individuals aged 32 years or younger who graduated from at least three years of tertiary education during the period 2001–2010. The regions are aggregates of the local labour markets based on their size of population. Migration based on the location of the residence at age 17 relative to the location of the residence five years after graduation.