# Checkmate! Losing with Borders, Winning with Centers. The Case of European Integration

Ketevani Kapanadze
CERGE-EI

EEA-ESEM Congress, 2022

## Motivation I:

### Winners and Losers of European Integration

- ▶ The EU Eastern enlargement in 2004 and joining Schengen in 2008 are one of the greatest examples in history of international trade integration and abolishing border controls.

- ▶ In the recent paper by Campos et al. (2020), authors find strong evidence for positive net benefits from EU membership, despite considerable heterogeneity across countries.

- ▶ The **"European integration effects heterogeneity"** *within* countries is neglected in the empirical studies. European integration might affect different sub-regions within countries in different ways. *For whom does integration generate beneficial or adverse effects at sub-regional level?*

- ▶ This is the first study which present estimates of the effect of joining EU and Schengen across all CEECs sub-regions, individually.

**Geographical Proximity Matters**

▶ Based on NEG theoretical models, the economic integration shock should have affected the internal economic geography.

▶ Borders=Winners:
  • Better access to the foreign market would increase the market area of the border regions and foster the settlement of firms close to the national border.

▶ Borders=Losers:
  • Low economic potentials on both sides of the border and adverse effects of increased competition are considerable, particularly in low-wage industries

# Empirical Literature Review

Building on Hanson (1998) and Redding & Sturm (2008)

Effect of European Integration on Border vs. Interior Sub-Regions

| Paper By | Main Results | Treated | Comparision Group | Methods |
|---|---|---|---|---|
| Brülhart, Crozet, Koening (2004) | (+) | Border regions in EU-15 | Interior Regions | Simulation Analysis |
| Brulhart & Koening (2005) | (+) | Border regions in NMS-10 | Interior Regions | Simulation analysis |
| Niebuhr (2008) | (+) | Border regions in NMS-10 | Interior Regions | Simulation Analysis |
| Brakmmann & Vogel (2011) | (-, NE) | German's Eastern border regions | Interior regions | Difference in Difference |
| Brakman et al (2012) | (+) | Border regions in EU | Interior regions | Difference in Difference |
| Heider (2018) | (+) | German's Eastern border regions | Interior regions | Triple Difference |
| Mitze et al. (2018) | (EU15 +, NM10 NE) | Border regions in EU | Interior regions | Spatial-time incremental difference in difference model |
| | | | | |
| My paper | **First Stage:** (+ -) | All regions in CEECs | Non-EU/SCH regions | Disaggregated Synthetic Control Method |
| | **Second Stage:** (-) | Border regions in CEECs | Interior regions in CEECs | OLS |

# Main Research Questions

In estimating the net benefits from EU and SCH memberships in CEECs sub-regions, I address the following main questions.

- ▶ What would be the level of per capita income in each sub-region if the country it belongs had not joined the EU and SCH? construct

- ▶ Do all sub-regions benefit from economic integration, specifically is there a significant economic gap among border and interior regions ? compare

- ▶ If yes, do facilitators interacted with the geographical proximity of being a border or not reduce the existing economic gap? complement

- **Treated Group**: Czech Republic, Poland, Hungary, Slovenia, Slovakia, Lithuania, Latvia, and Estonia
- **Control Group (EU)**: Bulgaria, Romania, Croatia, and Norway
- **Control Group (SCH)**: Bulgaria, Romania, Croatia, Norway , Ireland and United Kingdom.
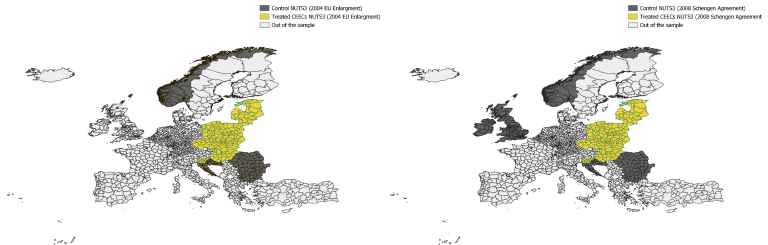
- Annual Regional Database of the European Commission's Directorate-General for Regional and Urban Policy platform (ARDECO)
  - ▶ Dataset includes 14 European countries and 437 NUTS3 regions
  - ▶ GDP per capita (constant prices, in EUR), population, total Employment & GVA per capita (constant prices, in EUR). Sectoral decomposition: employment and GVA per capita in agriculture, industry, & Wholesale, retail, transport, accommodation, food, information, and communication sectors.
  - ▶ Data coverage: 1990-2015

- Typology and the size of NUTS3 are collected from the Geographic Information System of the Commission (GISCO) database
- Eurostat and the DIVA-GIS shapefiles
- Terrain map and hillshade data from European Environment Agency (EEA)
- EU accession referendum data from European Election and Referendum Database

# Stage I: Disaggregated Synthetic Controls

## Regional Treatment Effects (RTEs)
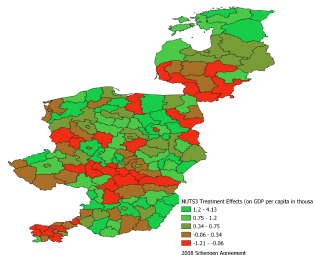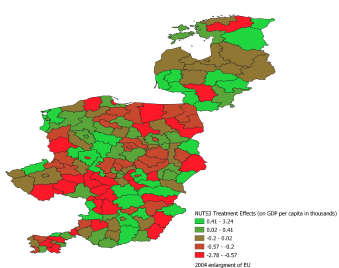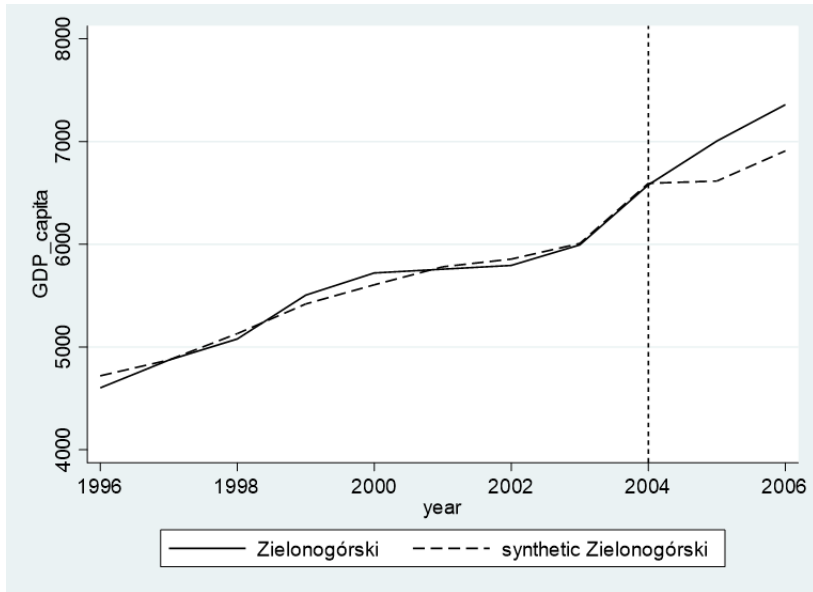
$$RTE_i = \beta Border_i + X_i + \epsilon_i$$

- $RTE_i$ is the effect of the European integration in NUTS3 i
- $\beta$ shows if and how post-accession trends differ between border and interior regions

# Regression I

| Dependent variable: RTEs on GDPPC | (1) EU | (2) EU | (3) EU | (4) SCH | (5) SCH | (6) SCH |
|---|---|---|---|---|---|---|
| Land Border (25km) | -0.189** | | | -0.312* | | |
| | (0.066) | | | (0.146) | | |
| Internal EU Border | | -0.222** | | | -0.292* | |
| | | (0.065) | | | (0.143) | |
| External EU Border | | | -0.087 | | | -0.165 |
| | | | (0.109) | | | (0.241) |
| Constant | 0.224 | 0.080 | 1.132 | -3.460*** | -3.765*** | -2.791** |
| | (2.263) | (2.262) | (2.263) | (0.788) | (0.986) | (0.925) |
| Controls | YES | YES | YES | YES | YES | YES |
| Country Fixed Effects | YES | YES | YES | YES | YES | YES |
| Observations | 140 | 125 | 66 | 140 | 125 | 66 |
| $R^2$ | 0.380 | 0.312 | 0.495 | 0.480 | 0.513 | 0.558 |

# Regression I

| Dependent variable:<br>RTEs on GDPPC | (1)<br>EU | (2)<br>EU | (3)<br>EU | (4)<br>SCH | (5)<br>SCH | (6)<br>SCH |
|---|---|---|---|---|---|---|
| Land Border (25km) | -0.189** | | | -0.312* | | |
| | (0.066) | | | (0.146) | | |
| Internal EU Border | | -0.222** | | | -0.292* | |
| | | (0.065) | | | (0.143) | |
| External EU Border | | | -0.087 | | | -0.165 |
| | | | (0.109) | | | (0.241) |
| Constant | 0.224 | 0.080 | 1.132 | -3.460*** | -3.765*** | -2.791** |
| | (2.263) | (2.262) | (2.263) | (0.788) | (0.986) | (0.925) |
| Controls | YES | YES | YES | YES | YES | YES |
| Country Fixed Effects | YES | YES | YES | YES | YES | YES |
| Observations | 140 | 125 | 66 | 140 | 125 | 66 |
| $R^2$ | 0.380 | 0.312 | 0.495 | 0.480 | 0.513 | 0.558 |

# Regression I

| Dependent variable: RTEs on GDPPC | (1) EU | (2) EU | (3) EU | (4) SCH | (5) SCH | (6) SCH |
|---|---|---|---|---|---|---|
| Land Border (25km) | -0.189** | | | -0.312* | | |
| | (0.066) | | | (0.146) | | |
| Internal EU Border | | -0.222** | | | -0.292* | |
| | | (0.065) | | | (0.143) | |
| External EU Border | | | -0.087 | | | -0.165 |
| | | | (0.109) | | | (0.241) |
| Constant | 0.224 | 0.080 | 1.132 | -3.460*** | -3.765*** | -2.791** |
| | (2.263) | (2.262) | (2.263) | (0.788) | (0.986) | (0.925) |
| Controls | YES | YES | YES | YES | YES | YES |
| Country Fixed Effects | YES | YES | YES | YES | YES | YES |
| Observations | 140 | 125 | 66 | 140 | 125 | 66 |
| $R^2$ | 0.380 | 0.312 | 0.495 | 0.480 | 0.513 | 0.558 |

# Regression I

| Dependent variable: RTEs on GDPPC | (1) EU | (2) EU | (3) EU | (4) SCH | (5) SCH | (6) SCH |
|---|---|---|---|---|---|---|
| Land Border (25km) | -0.189** | | | -0.312* | | |
| | (0.066) | | | (0.146) | | |
| Internal EU Border | | -0.222** | | | -0.292* | |
| | | (0.065) | | | (0.143) | |
| External EU Border | | | -0.087 | | | -0.165 |
| | | | (0.109) | | | (0.241) |
| Constant | 0.224 | 0.080 | 1.132 | -3.460*** | -3.765*** | -2.791** |
| | (2.263) | (2.262) | (2.263) | (0.788) | (0.986) | (0.925) |
| Controls | YES | YES | YES | YES | YES | YES |
| Country Fixed Effects | YES | YES | YES | YES | YES | YES |
| Observations | 140 | 125 | 66 | 140 | 125 | 66 |
| $R^2$ | 0.380 | 0.312 | 0.495 | 0.480 | 0.513 | 0.558 |

▶ Facilitators are important in cross-border interactions because they may reduce within country inequalities.

▶ Facilitators: non-mountainous, positive attitudes toward EU, and employment share in service sector.

▶ Economic gap among internal border vs. interior remains.

- I construct all individual CEECs' NUTS3 regional treatment effects and find that effects of European integration are heterogeneous at sub-regional level.

- I show that, in the course of European integration, annual GDP per capita in border regions lost more relative to interior areas by approximately €300, which is 10% of annual GDP per capita.

- Moreover, I show that a strong gap among border and interior regions remains even with moderators.