NETWORK ON EUROPEAN COMMUNICATIONS AND TRANSPORT ACTIVITIES RESEARCH

WORKSHOP
TRANSPORT INFRASTRUCTURES:
INVESTMENTS, EVALUATION AND REGIONAL ECONOMIC GROWTH

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EVALUATION OF THE ECONOMIC EFFECTS OF TRANSPORT INFRASTRUCTURES AS AN ELEMENT OF SPECIAL ECONOMIC ZONES

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WHAT IS A SPECIAL ECONOMIC ZONE?

- A special economic zone is a geographical region with different economic legislation than the legislation in place in the country of origin.
- According to World Bank data, there are almost 5 thousand SEZs in the world, in 130 countries, 43% of which is located in Asia. Europe, on the other hand, hosts about 20% with a high concentration in Poland.
- The SEZ was introduced in Italy with the Legislative Decree 91/2017, "Decreto Sud", in order to promote economic growth in Southern areas.

LITERATURE

- The majority of theoretical papers confirms positive effects of SEZs on employment and investments (House and Shapiro, 2006; Edge and Rudd, 2010);
- Another part of the literature focuses on externalities and on the attraction of new companies that use more advanced technology or process superior know-how (as in the case of FDIs) (Markusen and Venables, 1997; Ge 2012).

LITERATURE

Empirical studies on SEZs' effects can be grouped according to the methodological approach they use.

- Descriptive case studies concerning the evolution of SEZs;
- Formal econometric analyses (with the use of dummies or similar methods to evaluate the difference between SEZs-hosting and non-hostin regions).

(Jensen and Winiarczyk, 2014; Pilarska, 2009)

SOME CASES

- Poland: SEZs as a tool for attracting FDI
- Russia: SEZs as instruments to develop exports, create jobs and launch technology/knowledge sharing.

DATA SOURCE

The primary source of data on SEZs is the World Trade Organization.

Additional information was also used (partly for cross-checking) provided by ILO, the NGO Know Your Country and the World Bank.

The analyzed dataset is provided in STATA.

The data not only provide the indicators of the countries that use special economic zones for the commercial policy, but also a mapping for various indicators that can derive from these policies.

DATA ANALYSIS

We tried to analyze the factors that influence the performance of SEZs.

The main results of the analysis indicate that:

- zone growth is difficult to sustain over time;
- it is often difficult to try to update the technological components through the policies of the SEZ;
- the larger areas have an advantage in terms of growth potential.

DATA ANALYSIS

To study a SEZ we must keep in mind:

- the incentives provided by the national/local government in these areas in order to favor them;
- the socio-economic and institutional characteristics of the regions and countries where SEZ is present.

METHODOLOGY

To quantitatively disentangle the economic importance of SEZs six different econometric models were used:

► **Model One**

$$Ln(FDI\_INC_{it}) = \alpha + \beta_1 Ln(POP_{it}) + \beta_2 Ln(GNI_{it}) + \beta_3 Ln(1+TAX_{it}) + \varepsilon_{it}$$

► **Model Two**

$$Ln(FDI\_INC_{it}) = \alpha + \beta_1 Ln(POP_{it}) + \beta_2 Ln(GNI_{it}) + \beta_3 Ln(1+TAX_{it}) + \beta_4 SEZ_{it} + \varepsilon_{it}$$

where:

FDI_INC measures foreign direct investments incomes;

POP is the population;

GNI is per capita gross national income;

TAX is the total fiscal rate;

SEZ is a dichotomous variable that takes the value of one if the country has a special economic zones;

ε is the error term

i denotes Country, t year, Ln natural logarithm

METHODOLOGY

► **Model Three**

$$TRADE_{it} = \alpha + \beta_1 Ln(POP_{it}) + \beta_2 Ln(GNI_{it}) + \beta_3 Ln(END_{it}) + \varepsilon_{it}$$

► **Model Four**

$$TRADE_{it} = \alpha + \beta_1 Ln(POP_{it}) + \beta_2 Ln(GNI_{it}) + \beta_3 Ln(END_{it}) + \beta_4 SEZ_{it} + \varepsilon_{it}$$

Where:

TRADE measures the percentage of trade on the GDP;

POP is the Population;

GNI is per capita gross national income;

END measures transport infrastructures endowment;

SEZ is a dichotomous variable that takes the value of one if the country has a special economic zones;

ε is the error term

i denotes Country, t year, Ln natural logarithm

METHODOLOGY

- **Model Five**

$$TECH_{it} = \alpha + \beta_1 Ln(POP_{it}) + \beta_2 Ln(GNI_{it}) + \beta_3 END_{it} + \varepsilon_{it}$$

- **Model Six**

$$TECH_{it} = \alpha + \beta_1 Ln(POP_{it}) + \beta_2 Ln(GNI_{it}) + \beta_3 END_{it} + \beta_4 SEZ_{it} + \varepsilon_{it}$$

Where:

TECH measures percentage of high-tech of exports;

POP is the Population;

GNI is per capita gross national income;

END measures transport infrastructures endowment;

SEZ is a dichotomous variable that takes the value of one if the country has a special economic zones;

ε is the error term

i denotes Country, t year, Ln natural logarithm

RESULTS

	ln(FDI_INC)	ln(FDI_INC)
ln(POP)	0.86 (0.05)**	0.81 (0.05)**
ln(GNI)	1.57 (0.12)**	1.54 (0.12)**
ln(1+TAX)	-0.54 (0.22)***	-0.48 (0.24)*
Special economic zone		0.45 (0.24)*
Constant	-4.26 (1.63)**	-3.66 (1.69)**
R squared	0.86	0.86
N	107	107

*$p<0.05$; **$p<0.01$, ***$p<0.15$

RESULTS

	TRADE	TRADE	TECH	TECH
ln(POP)	-16.27 (3.012)**	-16.42 (3.10)**	1.08 (0.66)***	1.03 (0.63)***
ln(GNI)	1.82 (3.45)***	-1.67 (3.53)***	2.21 (0.64)***	2.31 (0.63)***
ln (END)	14.67 (7.63)***	14.49 (7.83)***	0.79 (1.28)***	0.73 (1.27)***
SEZ		3.91 (9.68)***		1.28 (3.31)***
Constant	385.98 (46.79)**	386.82 (48.75)**	-30.83 (10.83)*	-30.57 (10.61)*
R squared	0.29	0.29	0.15	0.16
N	107	107	107	107

*$p<0.05$; **$p<0.01$, ***$p<0.15$

COMMENTS AND CONCLUSIONS

The analysis estimates show, in summary, that on FDI:

- the population acts positively,
- the national income per capita acts positively and is statistically significant,
- the total tax rate acts negatively.

Analyzing the results obtained it can be said that special economic zones can be a useful element in attracting foreign investments.

The analysis estimates also show that on the percentage of the trade on the GDP:

- the population acts in a negative way,
- the national income per capita acts positively and is statistically significant,
- the endowment of transport infrastructures acts positively.

Analyzing the obtained results it is possible to deduce, therefore, that the special economic zones can be a useful element to increase the percentage of the trade on the GDP.

The analysis estimates show, in summary, that on the percentage of high-tech exports:

- the population acts positively,
- the national income per capita acts positively and is statistically significant,
- transport infrastructures act positively.

Analyzing the results obtained, we can deduce, therefore, that special economic zones can be a useful element to increase the percentage of high-tech exports.

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