

Interregional flows and the allocation of the EU Cohesion Policy funding (system of integrated regional HERMIN models)

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PLAN

- **Our research task**
- **Our research tools: models and analysis**
- **Investigating how regions “talk” to each other**
- **What did we discover?**



RESEARCH TASK

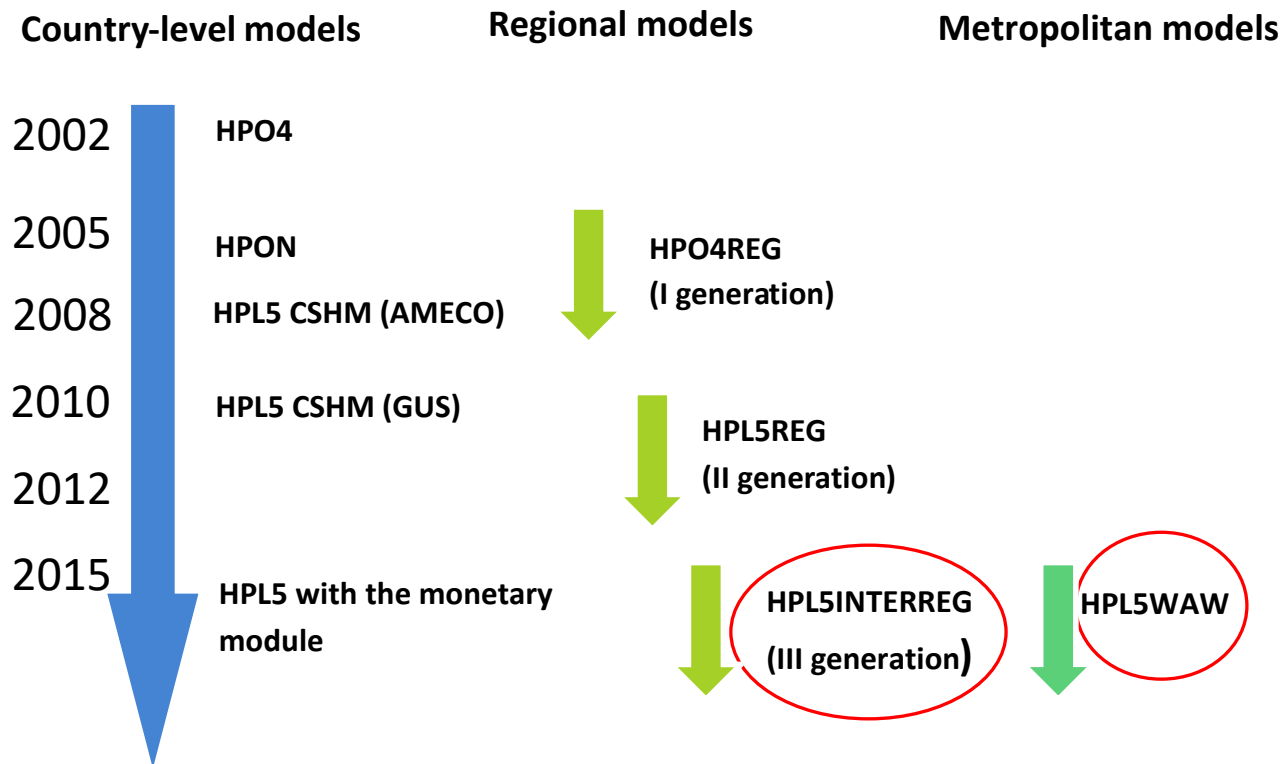
Evaluating the role of interregional trade flows for spillover effects of the Cohesion Policy

Additional context for the allocation of CP funding

Example of the NUTS-2 region of Dolnośląskie

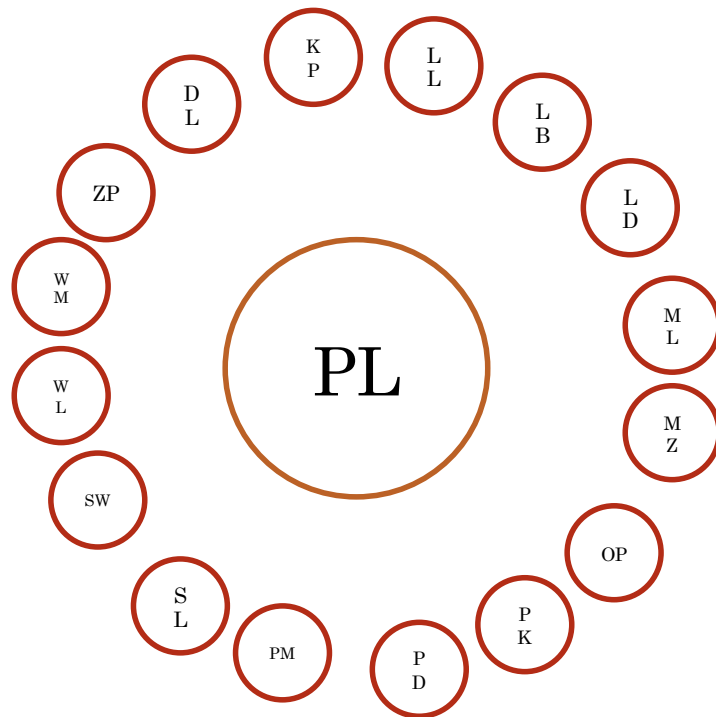


HERMIN – DEVELOPMENT

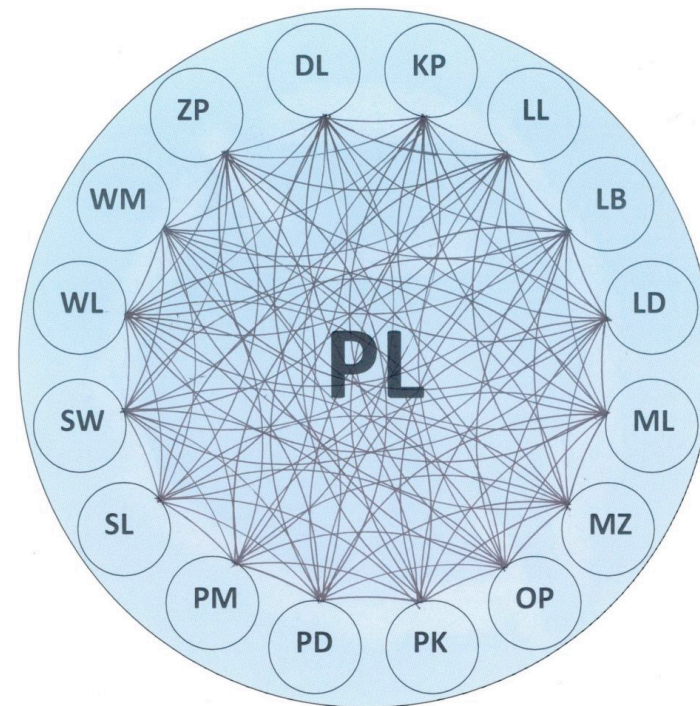


METHODOLOGY (1)

Original system of HERMIN models

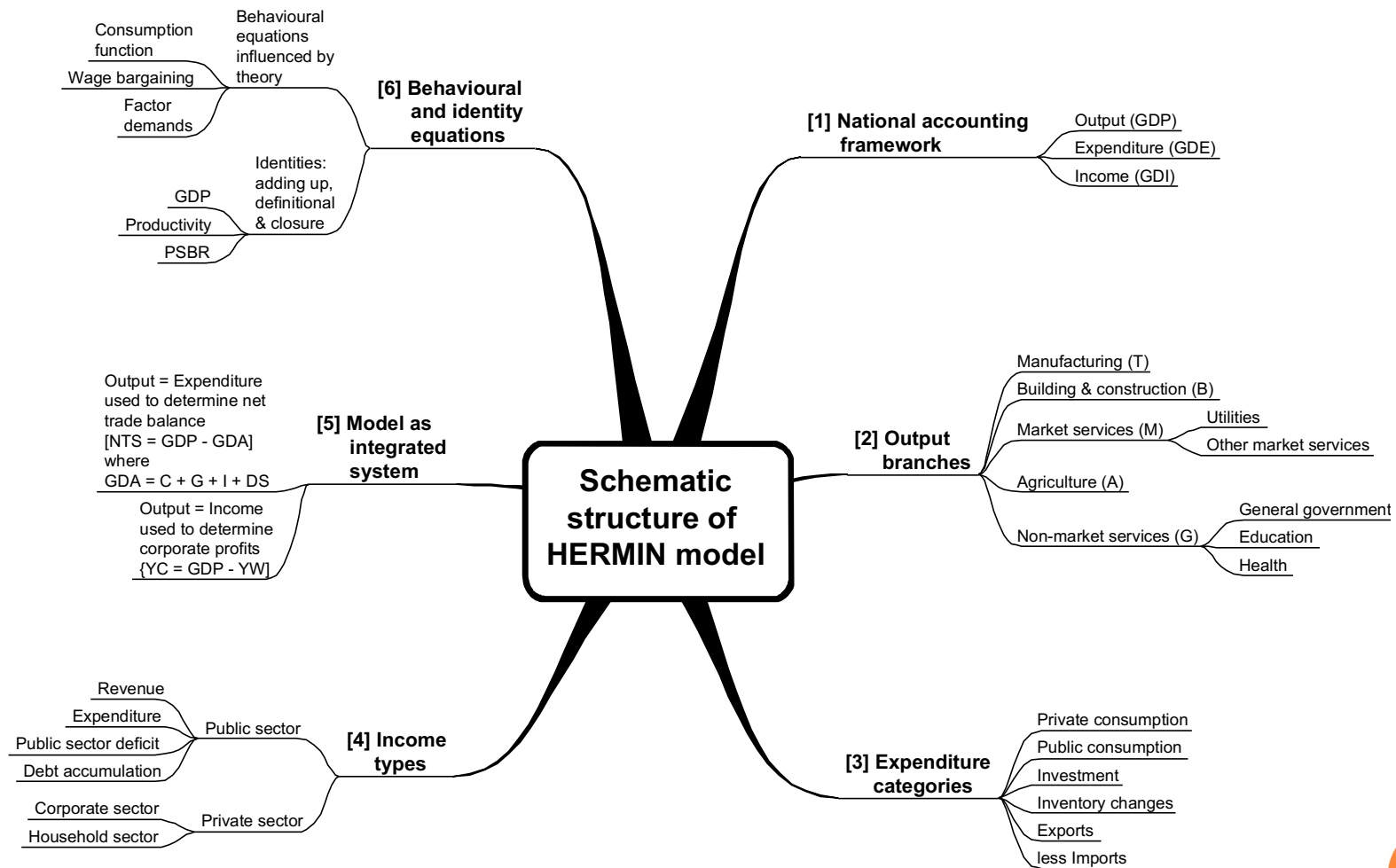


Interrelated HERMIN models



METHODOLOGY (2)

THE HERMIN MODELLING FRAMEWORK



METHODOLOGY (3)

CHANGES MADE TO THE MODELS

- It integrates economies via supply-side (output).
- The first main channel through which interregional links are incorporated in the system is the external demand which determines output in the manufacturing sector.
- The second main channel through price competitiveness and it allows for endogenization of the influence of interregional relations on the price-generating processes.



METHODOLOGY (4)

MODELLING INTERREGIONAL TRADE

TWO APPROACHES

Two extreme variants:

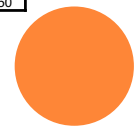
- Geographical structure of interregional sales determined solely by GDP potential („POTENTIAL” VARIANT).
- Geographical structure of interregional sales determined solely by time accessibility („ACCESSIBILITY” VARIANT).



METHODOLOGY (5)

MODELLING INTERREGIONAL TRADE (50/50)

	dolnośląskie	kujawsko-pomorskie	lubelskie	lubuskie	łódzkie	małopolskie	mazowieckie	opolskie	podkarpackie	podlaskie	pomorskie	śląskie	świętokrzyskie	warmińsko-mazurskie	wielkopolskie	zachodniopomorskie	Udział wmi wmi handlowej wewn ałtr Polski w całoś ci ekspor tu regio nu
dolnośląskie	0,00	0,02	0,02	0,02	0,03	0,04	0,06	0,05	0,02	0,01	0,02	0,05	0,02	0,01	0,04	0,02	0,41
kujawsko-pomorskie	0,05	0,00	0,03	0,03	0,05	0,04	0,10	0,03	0,03	0,03	0,07	0,06	0,03	0,04	0,07	0,03	0,67
lubelskie	0,05	0,04	0,00	0,02	0,05	0,06	0,12	0,03	0,06	0,04	0,04	0,06	0,05	0,04	0,06	0,03	0,72
lubuskie	0,04	0,02	0,02	0,00	0,03	0,03	0,06	0,02	0,02	0,01	0,02	0,04	0,01	0,02	0,05	0,04	0,41
łódzkie	0,06	0,04	0,04	0,03	0,00	0,06	0,13	0,04	0,03	0,03	0,04	0,08	0,04	0,03	0,07	0,03	0,74
małopolskie	0,06	0,03	0,03	0,02	0,05	0,00	0,09	0,04	0,04	0,02	0,03	0,13	0,05	0,02	0,05	0,03	0,66
mazowieckie	0,05	0,05	0,05	0,03	0,07	0,05	0,00	0,03	0,03	0,04	0,04	0,07	0,04	0,04	0,06	0,03	0,657
opolskie	0,09	0,03	0,03	0,03	0,05	0,07	0,09	0,00	0,03	0,02	0,03	0,11	0,03	0,02	0,05	0,03	0,68
podkarpackie	0,05	0,03	0,05	0,02	0,03	0,06	0,09	0,03	0,00	0,02	0,03	0,07	0,04	0,02	0,04	0,02	0,58
podlaskie	0,05	0,04	0,05	0,03	0,05	0,05	0,12	0,03	0,04	0,00	0,04	0,06	0,04	0,05	0,06	0,03	0,72
pomorskie	0,03	0,05	0,02	0,02	0,03	0,03	0,08	0,02	0,02	0,00	0,04	0,04	0,02	0,04	0,04	0,02	0,47
śląskie	0,06	0,02	0,02	0,02	0,04	0,10	0,09	0,05	0,03	0,02	0,03	0,00	0,04	0,02	0,05	0,02	0,61
świętokrzyskie	0,06	0,04	0,05	0,02	0,06	0,08	0,12	0,04	0,05	0,02	0,04	0,09	0,00	0,03	0,06	0,03	0,77
warmińsko-mazurskie	0,04	0,05	0,03	0,03	0,04	0,04	0,10	0,02	0,03	0,04	0,06	0,06	0,03	0,00	0,05	0,03	0,63
wielkopolskie	0,05	0,04	0,02	0,04	0,05	0,04	0,09	0,02	0,02	0,02	0,03	0,06	0,02	0,02	0,00	0,03	0,56
zachodniopomorskie	0,04	0,04	0,02	0,05	0,04	0,04	0,06	0,02	0,02	0,02	0,04	0,04	0,02	0,02	0,06	0,00	0,50



TWO TYPES OF MACROECONOMIC SIMULATIONS



„STRUCTURAL ANALYSIS“
How do structural changes in development of one region translate to other regions?

„IMPACT COUNTERFACTUAL ANALYSIS“
E.g. How much GDP level is higher in comparison to a hypothetical situation in which a specific public policy was not implemented?



BALANCE OF THE INTERREGIONAL SPILL-OVER EFFECTS OF COHESION POLICY

EXAMPLE OF THE POLISH NUTS-2 REGION OF DOLNOŚLĄSKIE

The AIM:

To quantify the effects of Cohesion Policy which “spread” from Dolnośląskie to other Polish NUTS-2 regions, as well as those which “flow into” this voivodeship’s economy from the rest of the country



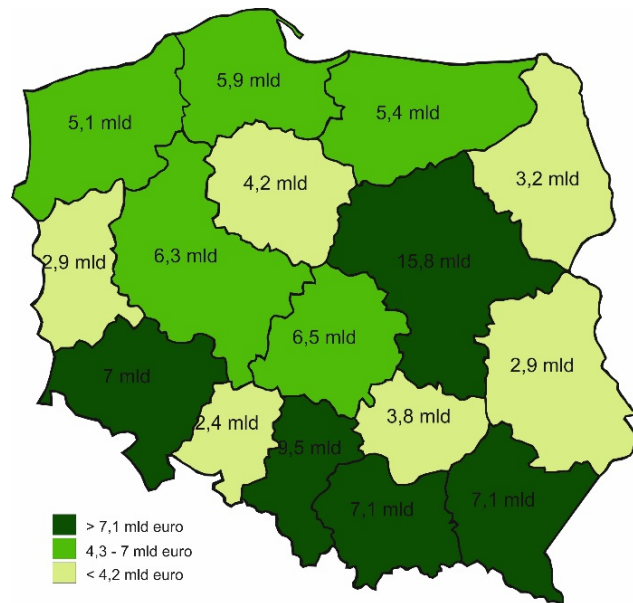
The analysis covers the period between **2014** (beginning of the current EU financial perspective) and **2030** (seven years after the end of EU funds implementation in the aforementioned perspective, which allows for the long-term economic effects to be recorded)



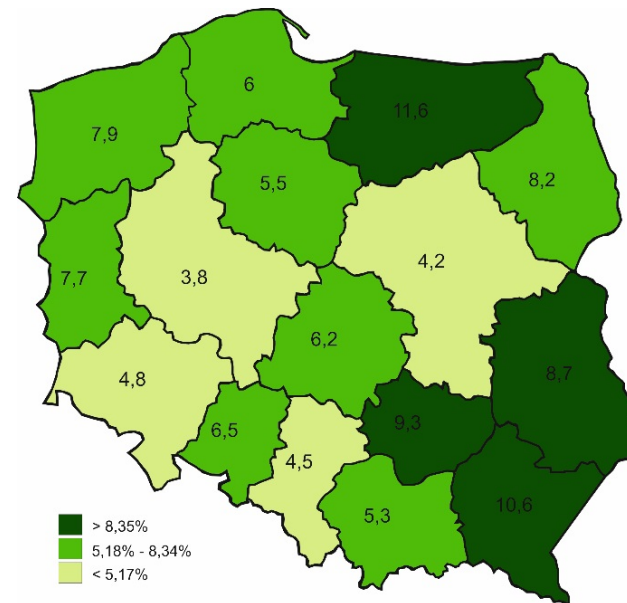
THE FUNDING (1)

CP funding implemented in 2014-2020 in Polish NUTS-2 regions

Total in bln PLN

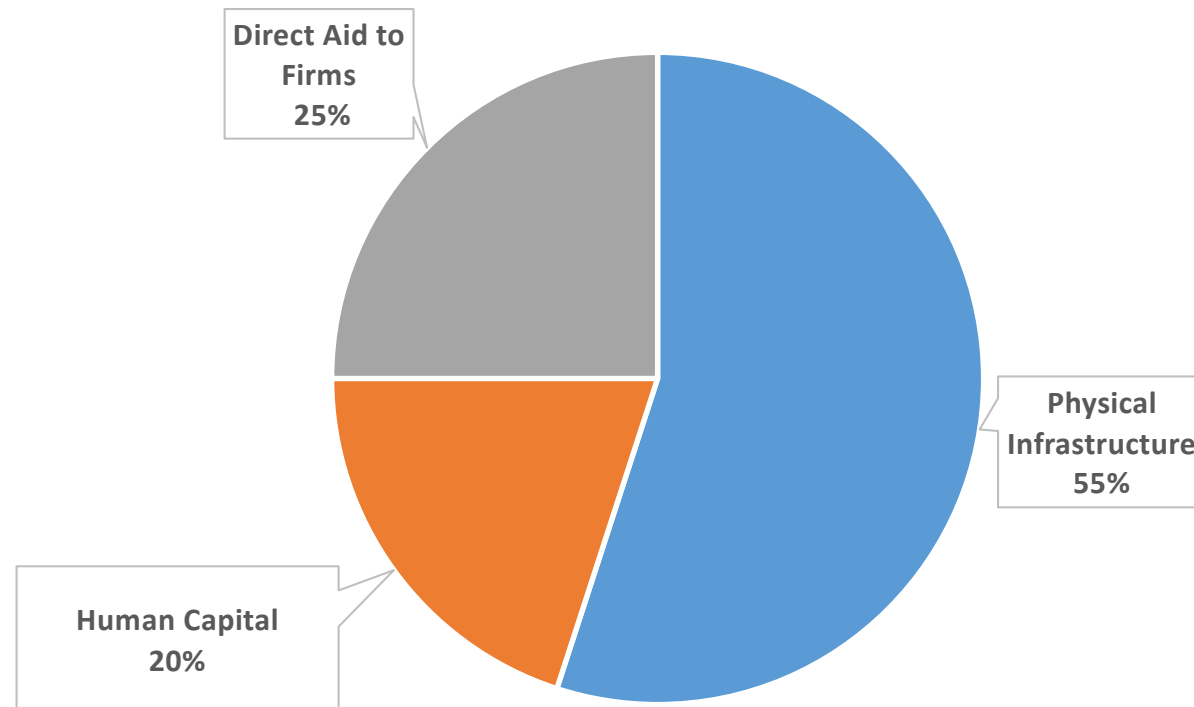


As the percentage of GDP



THE FUNDING (2)

ECONOMIC STRUCTURE



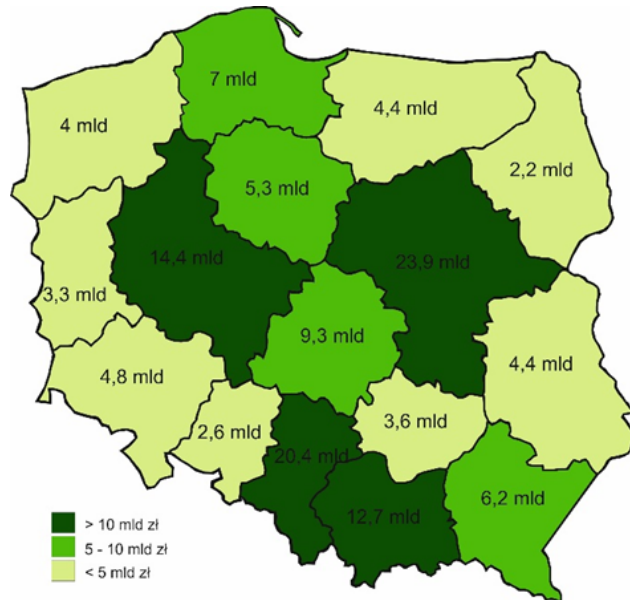
Source: own elaboration



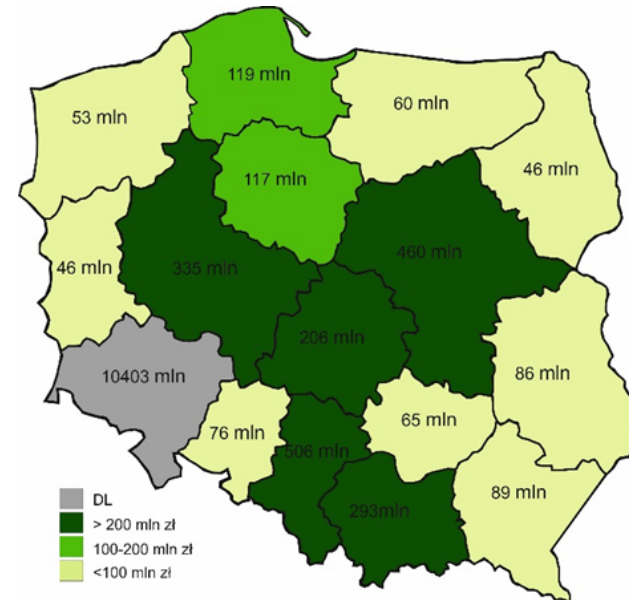
IMPACT COUNTERFACTUAL ANALYSIS – RESULTS (1)

Impact of the 2014–2020 Cohesion Policy on the GDP level in current prices in PLN
(average for 2014–2030)

Impacts of CP implemented in 15 voivodeships on the GDP level of Dolnośląskie



Impacts of CP implemented in Dolnośląskie on GDP in other Polish regions



IMPACT COUNTERFACTUAL ANALYSIS – RESULTS (2)

**CP effects flows into the economy of Dolnośląskie from the rest of the country
(average for 2014–2030) in PLN million**

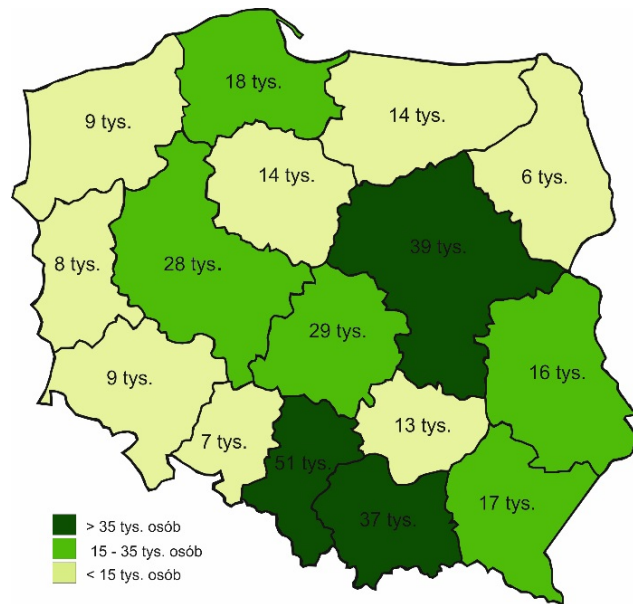
NUTS-2 region	PLN mln
kujawsko-pomorskie	267,3
lubelskie	246,0
lubuskie	319,8
łódzkie	360,7
małopolskie	409,5
mazowieckie	256,5
opolskie	461,9
podkarpackie	401,2
podlaskie	153,2
pomorskie	192,2
śląskie	677,4
świętokrzyskie	357,0
warmińsko-mazurskie	259,2
wielkopolskie	442,4
zachodniopomorskie	90,6



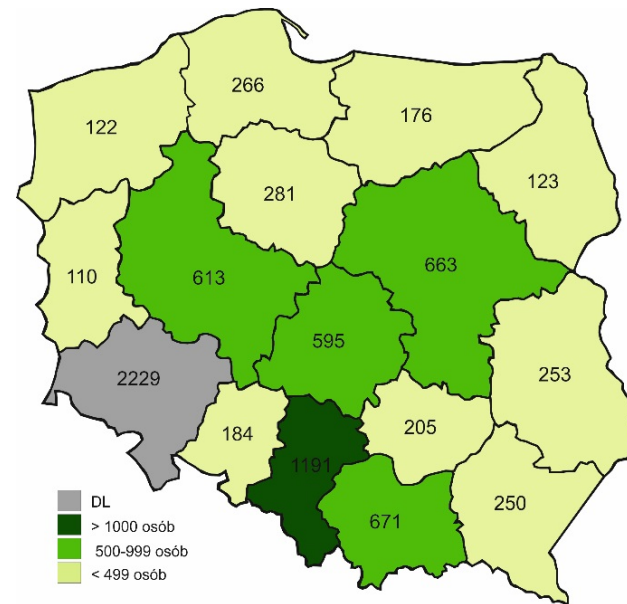
IMPACT COUNTERFACTUAL ANALYSIS – RESULTS (3)

Impact of the 2014–2020 Cohesion Policy on employment (average for 2014–2030) in thous. employees

Impacts of CP implemented in 15 voivodeships on employment in Dolnośląskie



Impacts of CP implemented in Dolnośląskie on employment in other Polish regions



CONCLUSIONS (1)

- System of integrated regional HERMIN models allows to capture **interregional spillovers** of the CP effects
- The scale of spillovers is not negligible as shown by the example of the Polish NUTS-2 region of Dolnośląskie which is likely to „import” **PLN 82 billion** of the CP effects from other Polish regions (54% of its 2015 GDP) and to „export” **PLN 43 billion** (around 29% its 2015GDP) in the period 2014-2030



CONCLUSIONS (2)

- The strength of **trade relations** between voivodeships is not the key factor determining the scale of the transfer of macroeconomic Cohesion Policy effects. The **leading role** is played by: economic structure, competitiveness of the enterprise sector, level of technological advancement and investment and foreign trade multipliers
- A diffusion process of developmental effects due to improvement of infrastructure **only a catchy buzzword** when not taking into consideration interregional economic structural relations



CONCLUSIONS (3)

- This conclusion demonstrates the need to take into account interregional economic interdependencies when creating **macroregional structures**, which are then used for the purpose of shaping and implementing the development policy
- **As interregional trade influences the effects of public policies**, a growing need arises for taking into account the results when allocating public funds across regions, i.e. shaping the algorithm for allocating EU funds in the financial perspectives



THANK YOU FOR YOUR ATTENTION

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