



# Adapting the Concept of Noise for Decentralized Policy Response Analysis

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A Case Study in Crisis Management

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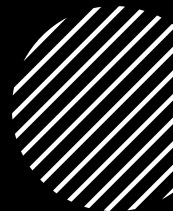
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# Introduction



Local authorities' autonomy: cornerstone of democratic governance



Reflects principles of subsidiarity and local self-governance



Recognizes unique position of local authorities to craft tailored policies



Consequence: variability in decisions across local authorities



Our focus: introducing 'policy noise' to assess this variability



# Research Question

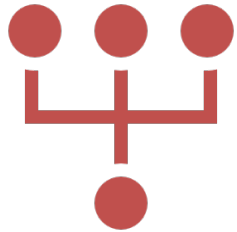
- How can we quantify and analyze the variability in local policy responses to similar challenges?
- **Case study:** Polish cities' response to Ukrainian refugee influx post-February 2022
- **Focus area:** Access to education for refugees



# Theoretical Background

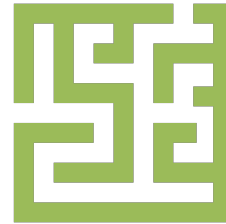
- Concept of 'noise' (Kahneman et al., 2021): **variability in judgments that should be consistent**
- Both a flaw and a potential benefit in decision-making
- Our adaptation: 'Policy Noise': inconsistencies and variations in decisions across administrative bodies dealing with similar challenges (e.g., refugee influx)

# Conditions for Measuring Policy Noise



## Multi-level setting:

Higher-level authorities establish a baseline  
Local authorities have discretion to complement



## Complex problems:

Multiple potential solutions  
Space for variability in approach

# Policy Noise Measurement Process

1. Identify policy domain (e.g., access to education)
2. Define sets based on policy cycle:
  - Agenda-setting set
  - Policy implementation sets (2 types: types of solutions and resource allocation)
3. Assign values to each set (0-1 scale)
4. Calculate total score for each administrative body
5. Compute standard deviation across all bodies

# Defining and Scoring Policy Noise Sets

## 1. **Agenda-setting set:**

- Who declares readiness to address the issue?
- Score: 1 for declaration, 0 for no declaration

## 2. **Policy implementation - types of solutions:**

- What types of solutions are implemented?
- Score:  $n/N$  ( $n$  = types of implemented solutions,  $N$  = all identified types of solutions)

## 3. **Policy implementation - resources allocated:**

- What proportion of resources is dedicated?
- Score:  $r/R$  ( $r$  = proportion allocated,  $R$  = maximum proportion observed)



# Final Steps in Policy Noise Calculation

	Agenda-setting score	Policy implementation score – types of solutions	Policy implementation score – resources allocated	Total score
Administrative body 1				
Administrative body 2				
...				
Standard deviation (noise measurement)				



# Case Study: Polish Cities' Response

- Analysis of 12 cities from the Union of Polish Metropolises
- Focus on response to Ukrainian refugee influx after February 24, 2022
- Specific policy area: Access to education for refugees
- Data: database of local laws; cities' self-reports on designed and implemented solutions; financial data from cities' 2022 reports.

# Calculation of agenda-setting score

City	Agenda-setting score
Białystok	0
Bydgoszcz	0
Gdańsk	1
Katowice	0
Kraków	1
Lublin	0
Łódź	1
Poznań	1
Rzeszów	1
Szczecin	0
Warszawa	1
Wrocław	1

Source: own analysis of relevant local regulations

# Calculation of policy implementation/types of solutions score

City	Types of solutions identified across the cities (N=8)								Number of types of solutions implemented by individual cities (n)		Policy implementation/types of solutions score
	Cultural and recreational integration	Information and advocacy	Professional development and employment of educators	Material and financial support	Psychological support	Educational support	Strategic partnerships to support access to education	Improvement of educational infrastructure			
Łódź	0	1	1	0	0	1	0	0	n(Łódź)	3	0,375
Poznań	0	1	1	0	1	1	0	0	n(Poznań)	4	0,5
Bydgoszcz	1	1	1	0	1	0	0	1	n(Bydgoszcz)	5	0,625
Szczecin	0	0	1	0	0	0	0	0	n(Szczecin)	1	0,125
Kraków	0	0	1	0	1	1	1	0	n(Kraków)	4	0,5
Lublin	1	0	0	1	0	0	1	0	n(Lublin)	3	0,375
Katowice	0	0	1	1	1	1	0	0	n(Katowice)	4	0,5
Rzeszów	1	0	0	0	0	0	1	0	n(Rzeszów)	2	0,25
Białystok	1	0	0	0	1	0	0	0	n(Białystok)	2	0,25
Wrocław	1	1	1	0	1	1	0	1	n(Wrocław)	6	0,75
Warszawa	1	1	1	0	1	1	0	1	n(Warszawa)	6	0,75

Source: own analysis of database of solutions collected by the Union of Polish Metropolises

# Calculation of policy Implementation/resource allocation score

City	Total spendings on education and educational care in 2022	Estimation of spendings on education-related solutions caused by the influx of refugees from Ukraine	Proportion of crisis solutions to total spendings (r); R=3,1%		Resources allocated score
Białystok	973 693 118,09 zł	12 755 594,21 zł	r(Białystok)	1,3%	0,42
Bydgoszcz	828 377 421,16 zł	24 940 070,32 zł	r(Bydgoszcz)	3,0%	0,96
Gdańsk	1 420 157 208,65 zł	33 142 204,00 zł	r(Gdańsk)	2,3%	0,74
Katowice	823 366 355,69 zł	22 517 929,67 zł	r(Katowice)	2,7%	0,87
Kraków	2 359 431 675,56 zł	60 354 392,42 zł	r(Kraków)	2,6%	0,82
Lublin	1 042 807 361,74 zł	16 783 791,84 zł	r(Lublin)	1,6%	0,51
Łódź	1 536 620 254,09 zł	8 953 547,50 zł	r(Łódź)	0,6%	0,19
Poznań	1 576 584 501,09 zł	41 959 774,00 zł	r(Poznań)	2,7%	0,85
Rzeszów	713 590 813,85 zł	10 684 565,56 zł	r(Rzeszów)	1,5%	0,48
Szczecin	968 530 479,39 zł	25 393 704,00 zł	r(Szczecin)	2,6%	0,84
Warszawa	5 750 882 006,38 zł	180 377 053,89 zł	r(Warszawa)	3,1%	1,00
Wrocław	2 004 054 875,38 zł	38 105 291,00 zł	r(Wrocław)	1,9%	0,61

Source: own analysis of financial reports of the cities

# Measurement of policy noise

	Agenda-setting score	Types of solutions score	Resources allocated score	Total score
Białystok	0	0,25	0,42	0,67
Bydgoszcz	0	0,625	0,96	1,58
Gdańsk	1	0	0,74	1,74
Katowice	0	0,5	0,87	1,37
Kraków	1	0,5	0,82	2,32
Lublin	0	0,375	0,51	0,89
Łódź	1	0,375	0,19	1,56
Poznań	1	0,5	0,85	2,35
Rzeszów	1	0,25	0,48	1,73
Szczecin	0	0,125	0,84	0,96
Warszawa	1	0,75	1,00	2,75
Wrocław	1	0,75	0,61	2,36
Standard deviation	<b>0,49</b>	<b>0,22</b>	<b>0,24</b>	<b>0,63</b>

Source: own analysis

# Results: Agenda-Setting

- High variability observed (Standard Deviation = 0.49)
- Indicates significant differences in public commitments
- Some cities are highly proactive
- Possible factors: political will, public pressure, available resources



# Results: Types of Solutions and Recourse Allocation

- Lower variability (Standard Deviation = 0.22 and 0.24)
- Suggests some consistency in practical measures across cities
- Positive interpretation: Baseline level of service provided by all
- Alternative view: Possible lack of adaptability to local needs







## Results: Total Score

- High variability (Standard Deviation = 0.63)
- Combines agenda-setting, types of solutions, and resource allocation
- Indicates significant overall differences in approach to refugee education
- Reflects complex interplay of administrative discretion, financial capability, and strategic priorities

# Discussion of Policy Noise Concept

## Strengths

- Provides quantitative measure of policy variability
- Offers starting point for further analysis
- Facilitates comparisons across different contexts
- Useful for evaluation studies and identifying areas of divergence

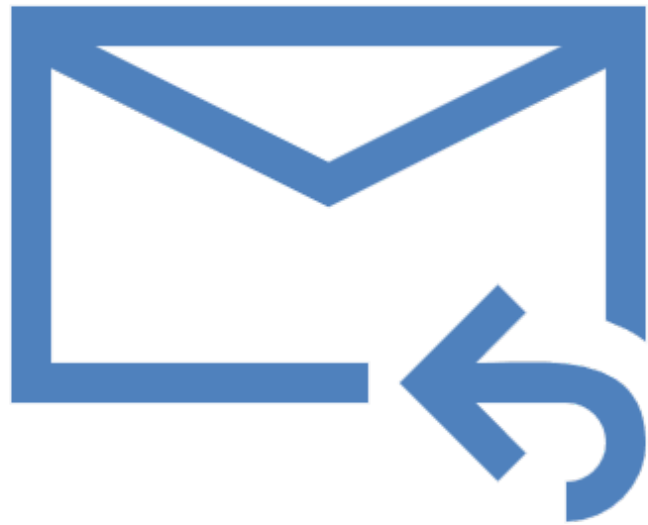
## Weaknesses

- Sensitivity to data quality
- Categorization is required, which is associated with interpretation
- The approach may be regarded as reductionist

# Conclusions on the case study

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- **Policy noise reveals implementation challenges.** The high level of policy noise (SD = 0.63 in total score) demonstrates significant variability in how cities approach refugee education. This variability highlights the challenges of implementing consistent policies across different local contexts, even when addressing the same issue. It underscores the tension between local autonomy and the need for coordinated responses to refugee influxes.
- **Resource allocation is crucial but inconsistent.** The wide range in financial resources allocated to refugee education (from 0.6% to 3.1% of education budgets) underscores the importance of funding in policy implementation. However, the inconsistency in resource allocation suggests potential disparities in the quality and extent of support available to refugees across different cities.
- **Formal commitments don't always translate to comprehensive action.** While some cities made formal declarations to support refugee education, this didn't always correlate with the breadth of solutions implemented or resources allocated. This highlights the need to look beyond official statements to assess the actual depth and effectiveness of refugee support policies.



# Thank You

Thank you for your attention!

Questions and comments welcome

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