# Public Budgets for Culture in the EU During Financial Crisis: An Econometric Analysis

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# Relevance of the Research

- To provide one of the rare macroeconomic and econometric analyses of cultural policy characteristics in cultural economics

# Culture in/and Crisis

**Positive Effects**

- Importance of competition
- Innovation
- Creativity
- Flexibility
- Role of local level increases
- Inland tourism

**Negative Effects**

- Immediate public and private sector cuts in subsidy
- Private sector reacts faster and recovers faster
- The role of the State increases
- Negative effect on employment

# Research Question and Hypothesis

- Do the examined EU countries use the similar cultural financing strategy during crisis as they use in economically successful years?
- Hypothesis: „*Effects of the financial crisis were reflected in the cuts in general, central and local budgets for culture*“

# Methodology of the Research

- *"Little has been done to explain public cultural expenditures from a macroeconomic or political economy perspective as has been done for general government spending… As new data become available, comparative econometric studies into the determinants of cultural spending in European countries will become more feasible." (Van der Ploeg, 2006:1192)*

- First part: principal components; hierarchical clustering strengthened by K-means;
- Second part: linear and dynamic panel data analysis (deviations from trend values, clustering effects); comparison across sectors
- Third part – relationship between central and local cultural budgets: time-series analysis – panel VAR

# Econometric Analysis – Clustering

- Policy variables clustering:

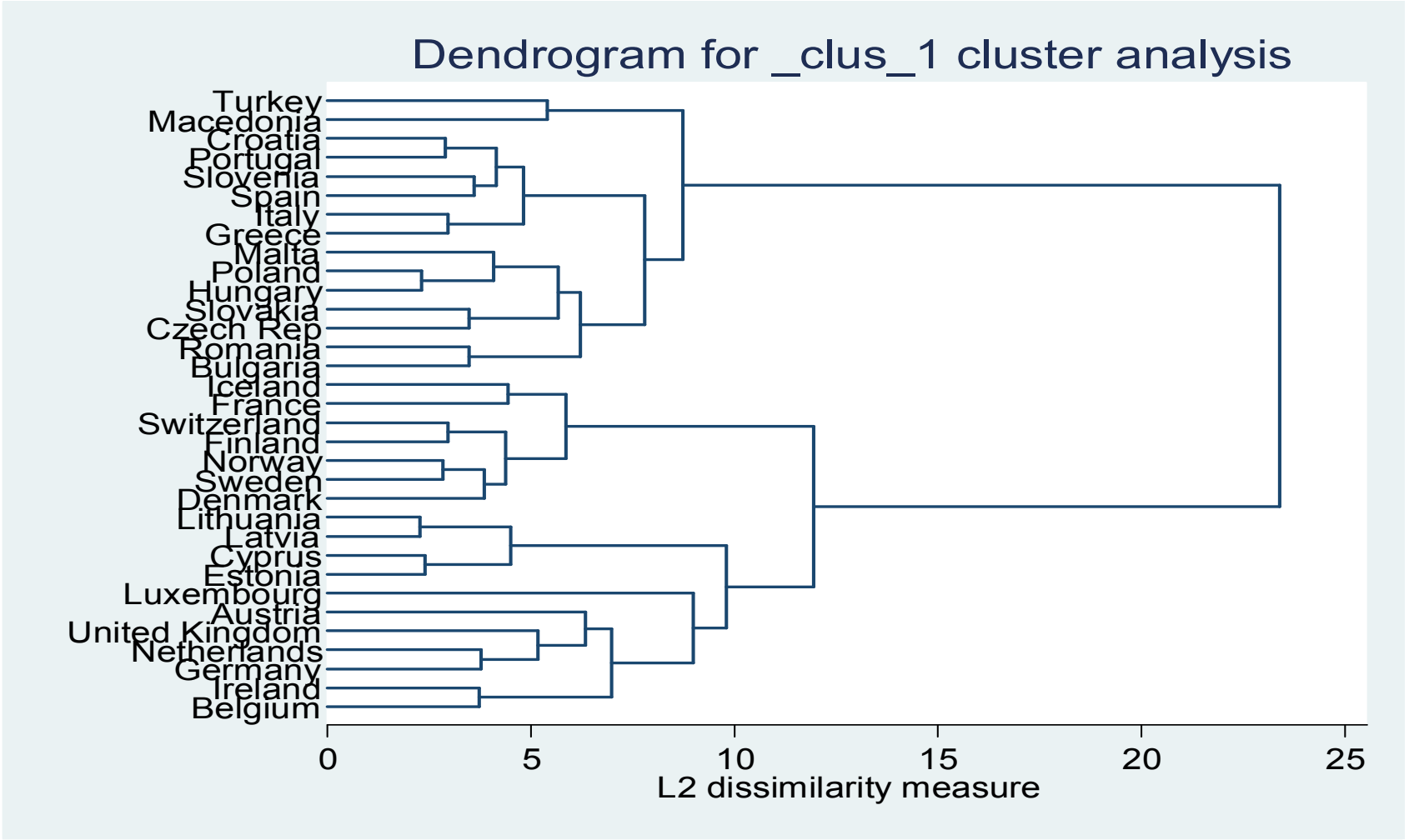
Cluster 1 – *"High Scoring Countries"*: Luxembourg, France, Netherlands, Ireland, Sweden, Finland

Cluster 2 – *"Low Scoring Countries"*: Slovenia, Cyprus, Lithuania, Hungary, Czech Republic, Spain, Italy

- Full Eurostat based data (Srakar et al. 2014):

Cluster 1 – *"Western European Countries"*: Iceland, France, Switzerland, Finland, Norway, Sweden, Denmark, Lithuania, Latvia, Cyprus, Estonia, Luxembourg, Austria, United Kingdom, Netherlands, Germany, Ireland, Belgium.

Cluster 2 – *"Eastern and Southern European/Mediterranean countries"*: Turkey, Macedonia, Croatia, Portugal, Slovenia, Spain, Italy, Greece, Malta, Poland, Hungary, Slovakia, Czech Republic, Romania, Bulgaria


Dendrogram for _clus_1 cluster analysis
Turkey
Macedonia
Croatia
Portugal
Slovenia
Spain
Italy
Greece
Malta
Poland
Hungary
Slovakia
Czech Rep
Romania
Bulgaria
Iceland
France
Switzerland
Finland
Norway
Sweden
Denmark
Lithuania
Latvia
Cyprus
Estonia
Luxembourg
Austria
United Kingdom
Netherlands
Germany
Ireland
Belgium
0
5
10
15
20
25
L2 dissimilarity measure

# Econometric Analysis – Clustering

- *General cultural budget* clustering:

Cluster 1 – “Cutters”: Spain, Ireland, Hungary, Lithuania,Sweden, Luxembourg, France

Cluster 2 – “Stagnators”: Finland, Cyprus, Italy, Slovenia, Netherlands, Czech Republic

- *Central cultural budget* clustering:

Cluster 1 – “Cutters”: Spain, Ireland, Hungary, Lithuania, Sweden, Luxembourg

Cluster 2 – “Stagnators”: Finland, Cyprus, Italy, Slovenia, Netherlands, Czech Republic, France

- *Local cultural budget* clustering:

Cluster 1 – “First Year Cutters”: Spain, Hungary, Sweden, Czech Republic

Cluster 2 – “Second Year Cutters”: Ireland, Lithuania, Luxembourg, Italy

Cluster 3 – “Stagnators”: Finland, Cyprus, Slovenia, Netherlands, France

# Econometric Analysis – Static and dynamic panel models

| Variable | Arts budget | | | | | |
|---|---|---|---|---|---|---|
| | General | | Central | | Local | |
| **Model** | **RE** | **SGMM** | **RE** | **SGMM** | **RE** | **SGMM** |
| **Crisdum** | -0.01 | -0.05 | -0.03 | -0.05 | 0.02 | -0.05* |
| **Austdum** | -0.03* | -0.02 | -0.05* | -0.02 | -0.03 | 0.01 |
| **CPMod1** | -0.11 | 0.12 | -0.09 | 0.90*** | -0.38 | -0.02 |
| **CPMod1*Cris** | 0.13*** | 0.02 | 0.11 | 0.01 | 0.10** | 0.01 |
| **CPMod1*Aust** | -0.01 | -0.01 | -0.06 | 0.03 | -0.02 | -0.06 |
| **logGDPpc** | 0.93*** | 0.43*** | 0.82*** | 0.80*** | 0.86*** | 0.14 |
| **legalabs** | 1.14* | 0.89* | 1.43 | 0.54 | 0.94* | -0.04 |
| **politicalabs** | 0.79 | 1.65*** | 1.04 | 3.72*** | 0.77 | 1.18** |
| **economicabs** | 0.52** | 1.43*** | 0.64* | 1.91** | 0.23 | 0.32 |
| *Wald chi2* | *205.93**** | *791.97**** | *97.32**** | *662.93**** | *515.14**** | *1790.04**** |

# Econometric Analysis – Comparisons among sectors

| Variable | Total budget | | | | | | COFOG 08 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gen | | Cent | | Loc | | Gen | | Cent | | Loc | |
| Model | RE | SGMM | RE | SGMM | RE | SGMM | RE | SGMM | RE | SGMM | RE | SGMM |
| Crisdum | 0.0980** | 0.0517** | 0.1161** | 0.1358*** | 0.0537 | -0.0650 | 0.0494 | -0.0339 | 0.0876* | -0.0039 | 0.0122 | -0.0317 |
| Austdum | -0.0445 | -0.0912*** | -0.0592 | -0.0781** | -0.0078 | -0.0141 | -0.0569* | -0.0363 | -0.0555 | -0.0671 | -0.0586** | 0.0072 |
| CPMod1 | -0.4958*** | 0.0185 | -0.5588*** | -0.1155 | -0.7629* | 0.3511* | 0.0836 | 0.2654 | 0.4784 | 0.7059** | -0.495 | 0.3130* |
| CPMod1*Cris | 0.0155 | -0.0464* | 0.0125 | -0.0474 | 0.1672 | -0.0226 | 0.1021 | -0.0002 | 0.0072 | -0.0692 | 0.1598*** | 0.0398 |
| CPMod1*Aust | 0.0251 | 0.0861** | 0.0290 | 0.0552 | -0.0155 | -0.0273 | -0.0339 | -0.0400 | -0.1165 | -0.0228 | 0.0273 | -0.0749 |

| Variable | Health care | | | | | | Education | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gen | | Cent | | Loc | | Gen | | Cent | | Loc | |
| Model | RE | SGMM | RE | SGMM | RE | SGMM | RE | SGMM | RE | SGMM | RE | SGMM |
| Crisdum | 0.1188*** | 0.0121 | 0.1846** | 0.1096 | -0.0019 | -0.3581** | 0.0772** | 0.0284 | 0.1125** | 0.0343 | 0.0226 | 0.0099 |
| Austdum | -0.0153 | -0.0159 | -0.0831** | -0.1269 | 0.1253 | 0.1415 | -0.0145 | -0.0203 | -0.0013 | -0.0393 | -0.0253 | 0.0245 |
| CPMod1 | -0.4397** | -0.0998 | 0.1642 | 0.8614*** | 0.2937 | -1.5091** | -0.3355** | 0.0482 | -0.6347 | 0.1083 | -0.6821 | 0.3805** |
| CPMod1*Cris | 0.0406 | 0.0016 | -0.0064 | -0.0743 | 0.2589* | 0.0391 | 0.0416 | -0.0276 | 0.0187 | -0.0994*** | 0.0617 | -0.0525 |
| CPMod1*Aust | 0.0001 | 0.0119 | 0.0774 | 0.1362 | -0.1547 | -0.3063 | -0.0018 | 0.0186 | -0.0175 | 0.0375 | -0.0085 | -0.0209 |

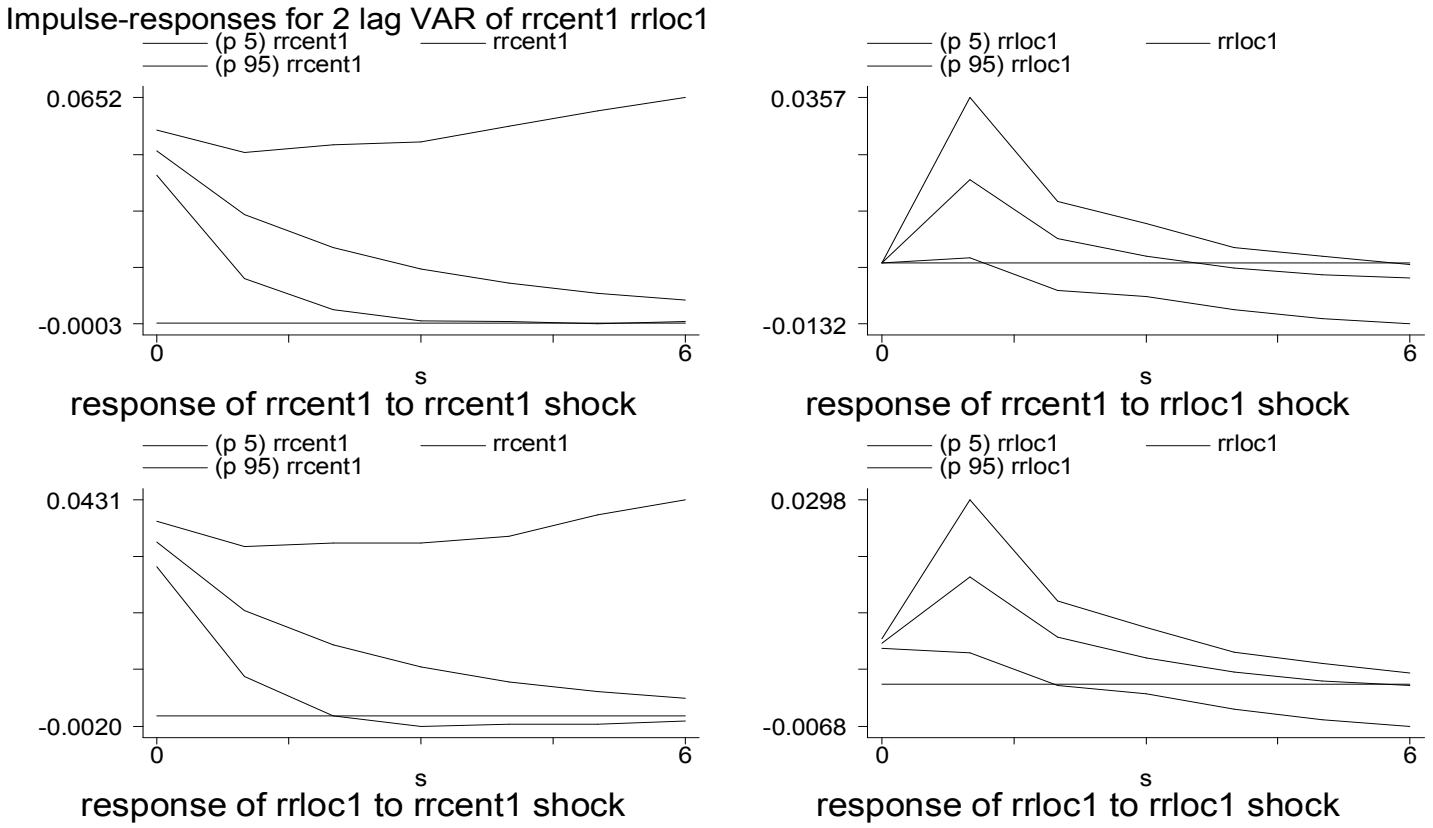
| Variable | Social care | | | | | |
|---|---|---|---|---|---|---|
| | Gen | | Cent | | Loc | |
| Model | RE | SGMM | RE | SGMM | RE | SGMM |
| Crisdum | 0.0617 | 0.0274 | 0.0851 | 0.0725* | 0.0469 | 0.0183 |
| Austdum | -0.0265 | -0.0299 | -0.0404* | -0.0808** | 0.0640 | 0.0343 |
| CPMod1 | -0.7848*** | -0.3601** | -2.2454** | -0.2134 | -1.3421*** | 0.1746 |
| CPMod1*C | 0.0719 | -0.0119 | 0.1116 | -0.0900* | 0.1492 | -0.0375 |
| CPMod1*A | 0.0070 | 0.0147 | -0.0194 | 0.0220 | -0.0550 | -0.0564 |

# Central and local cultural budgets – panel VAR

- "Little is known about the relationship between policies, strategies, programmes that are declared and implemented centrally and those made in the field, especially on the municipal level." (Čopič et al., 2013)
- Panel VAR methodology – effects of shocks in central/local cultural budgets on local/central cultural budgets
- Dependent variables – endogenous regressors purged from variability of exogenous regressors
- CADF panel unit root tests:

| | With constant | | With constant and trend | |
|---|---|---|---|---|
| Variable | Stat. test | P value | Stat. test | P value |
| logartscent | -4.021 | 0.000 | -3.869 | 0.000 |
| logartsloc | -4.036 | 0.000 | -3.465 | 0.003 |
| loggdpppppc | -3.367 | 0.004 | -3.659 | 0.001 |

# Central and local cultural budgets – panel VAR



# Conclusions

- From policy variable characteristics, **two broad clusters of countries** were identified, being labelled as *high-scoring* and *low-scoring* countries.
- When considering also other available data and classifications of e.g. Esping-Andersen (1990) it is probable that we can speak about **two clear clusters**: *"Western European countries"* and *"Eastern and Southern European/Mediterranean countries."*
- These groupings have strong implications for cultural policy research and would have to be tested and explored in future.

# Conclusions

- Responses in cultural budgets in times of crisis followed more the **individual characteristics of a country** than the similarities and differences in cultural policy characteristics.
- This is **confirmed by differences in clustering groupings in changes of general, central and local cultural budgets**, where e.g. Sweden, Luxembourg and Ireland clearly group into the "Cutters" cluster while France, Finland and Netherlands group into the "Stagnators" cluster. This thesis is also strongly supported by regression analysis.

# Conclusions

- The movements in cultural budgets in times of the financial crisis have most likely occurred as **cyclical movements** and **not** being part of the **longer term structural trend**.
- We found **clear downward deviations from the trend value for general, central and local budgets for culture** although with differences between model specifications. Contrary to what was found in Čopič et al. we were able to find evidence that there were **cuts present also in local cultural budgets, particularly at the early stages of the crisis** (and not so much a consequence of austerity policies)

# Conclusions

- We were also able to **model the (clearly endogenous) relationship** between central and local cultural budgets
- **Raising of the central cultural budget will also raise the local cultural budgets**, while, on the other hand, raising of the local cultural budgets will have **minor if not negative effects** on the level of central cultural budget.
- This, also, has important policy consequences and has to be verified and tested in future empirical studies.

# Possibilities of extensions (2013)

- At present to our knowledge almost no econometric analyses of cultural policy - a big void in cultural economics
- Extending the analysis (especially time-series verification) to other EU countries, using longer time series where they exist
- Development of cultural index for stronger clustering results allowing deeper insights into similarities and differences in cultural policy models
- Another possible extension: macroeconomic mathematical modeling using models from fiscal policy analysis
- Another possible extension: relationship between central and local cultural budgets – simultaneous equations problem, necessary to find valid IV's
- Another possible extension: development of estimators and tests suitable for problems of cultural policy statistics – unclear and changing classifications (perhaps using econometrics of measurement error problems would be helpful)
- Why has cultural economics so far largely ignored econom(etr)ics of cultural policy?

**Thank You for Your Attention!**

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