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Creative Class as a Determinant of Economic Development

Empirical Considerations for North Rhine-Westphalian Regions Based on Time Series Analysis

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Outline of Presentation

1. Introduction
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1. Introduction

Paper presents parts of research done by NIRS financed by Northrhine-Westphalian Government and European Union.

Aim: Analyzing Florida's ideas, concentrating on North Rhine-Westphalia and its regions.

2. Methods and Results

- **I Skip theoretical considerations.**
- **Paper only deals with influences of creative class (and human capital) on regional economic development.**
- **Difference to most other research: It uses foremost methods of time series analyses.**
- **Database: Employment statistics of Germany's social insurance system for all counties from 1999 to 2008.**
- **Classification of professions follows Florida's definitions (creative class, creative core, creative professionals and bohemians).**

2. Methods and Results

Step 1:

- **Cross section regressions using all German counties (2007).**
- **Testing influences of the share of creative people in total employment (or of human capital) on ...**
 - **... regional labour productivity (GDP per employee).**
 - **... regional per capita income (GDP per capita).**
- **Calculations based on ...**
 - **... all German counties,**
 - **... West-German and East-German counties and**
 - **... counties from groups of German federal states.**
- **Results:**
 - **Positive influences of Creative and human capital.**
 - **But: Significant differences by groups of federal states.**

2. Methods and Results

Step 2:

Similar differences on a more disaggregated regional level (counties)?

Time series analyses for 54 Northrhine-Westphalian (NRW) counties by simple top-down estimation procedures

Model 1:
$$\tilde{B}_i = a_1 + a_2 \tilde{B} + a_3 \tilde{B}_{Ki} + u_i$$

with:

\tilde{B}_i : relative change of total employment in region i

\tilde{B} : relative change of nationwide employment

\tilde{B}_{Ki} : relative employment change of creative class (core, professionals, bohemians) in region i

u_i : Error term

Model 2:

“Non-creative“ employment is used as dependent variable.

Expectation:

- Positive influence of creative on total and „non-creative“ employment respectively.
- In model 1 regression coefficients of the creative class variable should significantly exceed the regional shares of creative class.

2. Methods and Results

Results:

- **Model 1: Creative class positively influences development of total employment in the vast majority of NRW-counties, but the creative class effect exceeds its own share only in about half of all cases.**
- **Model 2: Positive influence of creative on „non-creative“ employment in about half of the regions, too. In all other cases this relationship could not be identified. Significant influences of creative class on “non-creative” employment mainly exist where the creative class effect exceeds its own share.**

Intermediate result:

- **Time series regressions provide clear hints that an increase of creative employment gives a positive impact to “non-creative“ employment in the same region – in many, but not in all Northrhine-Westphalian regions.**

2. Methods and Results

Step 3:

Supposition: Improvement of cross section results by using only regions with significant influences of creative class in time series analysis.

Table 1: Influences of Creative Class and Human Capital (Cross Section Regressions)

	Regressors	54 Regions	R ²	28 Regions	R ²	22 Regions	R ²
GDP per Employee	Creative class	0,41^{***}	0,24	0,51^{***}	0,32	0,47^{***}	0,28
	Human Capital	0,19 ^{***}	0,26	0,25 ^{***}	0,34	0,24 ^{***}	0,31
GDP per capita	Creative Class	1,14^{***}	0,42	1,29^{***}	0,44	1,25^{***}	0,44
	Human Capital	0,56 ^{***}	0,48	0,66 ^{***}	0,49	0,64 ^{***}	0,49
		14 Regions	R ²	26 Regions	R ²	24 Regions	R ²
GDP per Employee	Creative Class	0,86^{***}	0,61	0,27[*]	0,10	0,31[*]	0,12
	Human Capital	0,38 ^{***}	0,56	0,12 [*]	0,12	0,13 [*]	0,13
BIP per capita	Creative Class	1,84^{***}	0,78	1,00^{***}	0,47	0,83^{***}	0,33
	Human Capital	0,79 ^{***}	0,66	0,45 ^{***}	0,53	0,38 ^{***}	0,45
Cross section estimations based on results of table 1.							

2. Methods and Results

GDP per employee (table 1); results as expected:

- **Increase of regression coefficient; i.e. influence is higher.**
- **Coefficients of determination are higher, too.**
- **Regions without significant influences: Corrected R^2 considerably lower than original value. Regression coefficients (influence): Very low and the coefficients are less significant.**

GDP per capita (table 2) partly different , partly similar results.

2. Methods and Results

Same procedure for human capital.

Similar results:

- **For 37 NRW-counties significant influences of human capital on regional development of less qualified workforce could be identified.**
- **Mainly for regions that show an effect of human capital on total employment significantly above its own share.**

Intermediate result:

- **Human capital positively influences “less qualified” employment.**
- **But this holds true only for two third of the NRW-counties.**

2. Methods and Results

Step 3: Control of cross section analyses.

	Regressor(en)	54 Regionen	R ²	37 Regionen	R ²	22 Regionen	R ²
BIP pro Erwerbstätigen	Kreative Klasse	0,41 ^{***}	0,24	0,44 ^{***}	0,27	0,52 ^{***}	0,36
	Humankapital	0,19^{***}	0,26	0,23^{***}	0,32	0,27^{***}	0,43
BIP pro Kopf	Kreative Klasse	0,14 ^{***}	0,42	1,04 ^{***}	0,33	1,09 ^{***}	0,34
	Humankapital	0,56^{***}	0,48	0,56^{***}	0,42	0,59^{***}	0,45
	Regressor(en)	27 Regionen	R ²	17 Regionen	R ²	16 Regionen	R ²
BIP pro Erwerbstätigen	Kreative Klasse	0,68 ^{***}	0,49	0,29	0,07	0,35	0,07
	Humankapital	0,33^{***}	0,52	0,10	0,03	0,10	0,01
BIP pro Kopf	Kreative Klasse	1,49 ^{***}	0,52	1,38 ^{***}	0,72	1,27 ^{***}	0,59
	Humankapital	0,74^{***}	0,57	0,54^{***}	0,61	0,46^{***}	0,53
<p>Querschnitts-Schätzungen basieren auf den gebildeten Gruppen der Zeitreihen-Ergebnissen „Einfluss der Hochqualifizierten auf die wirtschaftliche Entwicklung nordrhein-westfälischer Regionen. Übersicht zu den Schätzergebnissen (Entwicklung der Restbeschäftigung)“</p>							

2. Methods and Results

I skip some critical remarks concerning the methods used (see paper!)

Results:

- **Creative class (human capital) positively influences employment of other segments of the regional economy.**
- **Impacts differ by region. Apparently there also are some NRW-regions where this relationship cannot be proved.**

Question:

Are there common attributes of these „creative-class-regions“?

2. Methods and Results

1. Degree of agglomeration?

- More relevant for highly agglomerated regions. But there are some highly agglomerated regions without a creative-class-effect.

2. Economic performance? (Cluster Analysis)

- Is not an exclusive attribute to provide an explanation for the creative-class-effects.

3. Structural and endowment attributes? (Indicators, cluster analysis)

- Examination of indicators gives hints that ...

... creative class effects are the more probable the higher the share of creative people in total employment.

... creative class effects cannot be identified especially in „agglomerated, formerly industrial dominated locations with endowment deficiencies and average creative potentials”.

... creative class effects cannot be identified in „less agglomerated, industry dominated locations with endowment deficiencies and low creative potentials”.

2. Methods and Results

- **Most (20) Northrhine-Westphalian counties without significant influences of creative class on regional development belong to clusters with the following main attributes:**
 - **A more than average share of industry,**
 - **a less than average level of qualification,**
 - **net emigration,**
 - **a less than average or even negative balance of newly founded and closed down enterprises,**
 - **and a less than average development of employment.**

3. Summary

Final result:

- **Creative class (human capital) positively influences “non creative” (“less qualified”) employment.**
- **But this seems to hold in many, but not in all regions.**
- **Additional analysis gives some confirmation that especially a certain type of regions has problems to profit from impulses stemming from the creative class – namely industrial oriented and old industrial regions with qualification deficits, the structural adjustment problems of which result in high net emigration and low rates of new firm formation.**

Thank You for Your Interest!