Diffusion of a Social Movement

The Example of the German Local Exchange Schemes

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Local Exchange Trading Systems: History

• First Founding 1983 in British Columbia, Canada, by Michael Linton
  – reaction to high unemployment

• System’s Spreading
  – 1984
    • presentation of the conception at „The Other Economic Summit“ in Great Britain by Michael Linton
  – 1985
    • founding of first Local Exchange System in Great Britain in Norwich
  – late 1980ies/early 1990ies
    • spread of the system throughout all industrialized English-speaking countries
  – early 1990ies
    • spread of the system throughout more western industrialized countries (Finland, Sweden, Norway, Spain, France, Italy, Netherlands, Swiss, Germany, etc.)

• Systems’ Design
  – similar structure of the systems along the lines of the Canadian predecessor
    • apart from regional variations regarding currency, membership profile, trading volume
Local Exchange Trading Systems: History

- **First German Exchange System**
  - founded 1988 in Wolfenbüttel

- **Founders**
  - activist of the local protestant church

- **Impact on founding**
  - movie about complementary economies screened at a family center of the church

- **Further spreading**
  - support of charity or church organizations continued in the formation process of German local exchange systems
  - contrary to formation process of local exchange systems in English speaking countries
  - mirrors strong corporatist orientation of Germany
Objectives of the Study

- **Objective:**
  - analyze the diffusion process and the patterns of diffusion of Local Exchange Systems in Germany
  - focus on contagious effects and density dependence

- **Research Questions:**
  - What patterns of diffusion were given?
  - What caused the diffusion of the systems in Germany?
  - Which role played the political entrepreneurs/agitators in the Exchange Systems’ spreading?
Exchange Systems as Social Movements

• Social movements
  – emerge out of a collective discontent with current situation of living
  – hope to achieve improvements by collective actions
  – making demands for change publicly visible

Social movements as “networks of informal interactions between a plurality of individuals, groups, or associations, engaged in a political or cultural conflict, on the basis of a shared collective identity.” (Diani 1992)

  – three dimensions
    • clear conflictual orientation: social/political opponents
    • dense inter-organizational networking
    • linked by solidarities and shared identities

• Collective identity
  – framing for communicating and justifying the movements’ objectives, interests and tasks to the movement’s participants and environment
Exchange Systems as Social Movements

• Common and directive objectives of the Exchange Systems
  – draw attention on societal failures and resolve them on local levels
    • improving the condition of living of underprivileged people
    • against globalization and its consequences
    • sustainable and local economy

• Collective identity of the Local Exchange Systems
  – strong ideological orientation
  – early systems emerged in green alternative milieu
  – systems’ tendency of “othering“
Process of Diffusion

• Before a social movement has become established
  – choice situation of adoption highly ambiguous
  – success and consequences difficult to assess
  – direct and social costs unknown

• Adoptive behavior
  – cautiousness in approaching novelty
  – increasing familiarity of innovation ⇒ reduced perception of risk
  – facilitating adoptive behavior ⇒ s-shaped curve of adoption (e.g. Rogers 1995)
    • early phases: rate of growth rather slow
    • than rapidly increasing
    • saturation point: leveling out
Adoption of Local Exchange Systems

- highly ambiguous situation before system’s establishment
  - benefits of joining the movement difficult to predict
    - societal culture: belief systems, cultural traditionalism, social acceptance
    - social costs: tax laws, social welfare fees, illicit work

- cautiousness in approaching Local Exchange Systems
  - slow rate of growth of Local Exchange Systems
  - increasing rate of adoption with increasing familiarity
    - 7 active systems in 1992
    - 200 active systems in 2000
    - 300 active systems in 2005
Contagious Effects and Spatial Proximity

- **Relevance of Networks** (e.g. Hedström 1994)
  - familiarity with the outcome of an innovation: information
  - individuals behavior influenced by actual past behavior of other individuals
  - observing the outcomes of other actors: signals to outsider
  - imitation, i.e. learning from experiences of others, highly rational form of decision making when relation between means and ends difficult to assess
  - adoption as network based decision
  - proximity enhances spread of information and facilitates imitation
    - density of social ties
    - mutual awareness and interdependence
    - frequency of communication
    - nature of interaction

- **Timing**
  - gradually more and better information available
  - declining effects of influence
Mesolevel-Networks and Contagious Effects

- Importance of political entrepreneurs (e.g. Hedström/Sandell/Stern 2000)
  - persuasion by charismatic leaders: intentional form of social influence
  - unintended by-product of agitation/traveling: mesolevel network
  - political entrepreneurs as broker/intermediaries
    - carrying information between otherwise disconnected regions
    - linking remote areas to one another by these information ties
    - edges reduce distances between the areas lying in-between the linked districts
  - consequences of mesolevel network
    - reduction of average geodesic distance between actors in the whole diffusion space
    - increasing speed of the diffusion process

- Timing
  - gradually decreasing ambiguity of choice situation
  - declining effects of visit by agitators
Media

• Alternative channel of diffusion (e.g. Andrews/Biggs 2006)
  – dissemination of information directly to potential adopters
  – information reaching broad audience
  – especially suited for loosely connected, large organizational networks

• Innovations with public consequences
  – popular, well-defined societal issues
  – media support role of institutionalization
  – generate knowledge and attention

• BUT
  – persuasion to adopt innovation depends on interpersonal communication
  – complementary not competitive relation with interpersonal communication
Density-Dependence

• Founding of new organizational forms (e.g. Hannan/Carroll 1992)
  – founding rates depend on population density
  – organizations of same population linked through processes of legitimation and competition

• Legitimation
  – relevant for resource mobilization
  – taken-for-granted: natural way of performing collective actions
  – legitimation increases with population density

• Competition
  – increasing population density: increasing competition
  – narrowing niche of relevant resources for founding

• Process of diffusion
  – founding rates: inverted u-shaped relationship of founding rate and density
    • at lower density: new organizations increasing legitimation
    • at higher density: new organizations increasing competition
Hypothesis

H1: The founding of a local exchange system is positively related to the existence of other systems in nearby regions.

H2: The founding of a local exchange system is positively influenced by the visit of an agitator/political entrepreneur.

H3: Both effects should decline with the passage of time.

H4: Media reports will force the founding rate of local exchange system.

H5: The founding rate of local exchange systems is negatively related to the population density.
Methodology

• Data for analysis
  – Standardized telephone survey of all German systems (total sample)
    – problem: definition of population
      • no compulsory registration as businesses
      • no official address register
      • voluntary address lists of diverse actuality
  – Database
    • match of all lists available, removing doublets
    • implementation of snowball technique
  – Information
    • systems’ names
    • geographic location
    • date of birth/death
Methodology

• Data for analysis
  – Information about media coverage
    • investigations in archives of supra regional news papers focusing on articles about exchange systems
    • Der Spiegel; Die Welt, Die Zeit; Fokus; Stern; SZ (Süddeutsche Zeitung); TAZ (Die Tageszeitung)
  – Information concerning districts
    • number of exchange systems per year
    • number of exchange systems in neighboring districts per year and one year lagged (contagious/spatial effects)
    • German-wide population size (density dependence)
    • annual unemployment rate (economic situation)
    • annual district size (urbanization)
    • percent voting green party in “Landtagswahlen” (ideological component)
Methodology

• Time of analysis
  – 1988-2005 West Germany: starting with first known system
  – 1995-2005 East Germany
    • data restrictions due to area re-definitions
    • delayed founding activity

• Unit of analysis
  – all German districts (Landkreise and kreisfreie Städte)
  – total of 439 districts

• Used method:
  – event history models
    • discrete time approach: data available on annual basis only
    • focus on point of time of first exchange system’s formation within a district
      and correlating this event with the covariates
      – activity in other districts
      – population density
      – district specific variables
Methodology

- Model:
  - duration model for grouped survival data following Prentice and Gloeckler (1978)
    - semi-parametric model
    - discrete hazard time for district i of switching in time interval j to found a Local Exchange System is given by following function:
      $$ h_j(X_{ij}) = 1 - \exp[- \exp(X_{ij}\beta + y_i)] $$
    - separate parameter $y_i$ for each spell
    - indicator variable $y_{it}$: 1 = event occurs during interval, 0 = otherwise
      $$ \log L = \sum_{i=1}^{n} \sum_{j=1}^{u} \{y_{ij} \log h_j(X_{ij}) + (1 - y_{ij}) \log[1 - h_j(X_{ij})]\} $$

- Organizing data:
  - changing units from districts to “district years”
  - for each district as many data rows as time intervals at risk
    - observation of each district ends with formation of the first exchange system
    - unbalanced panel data set
  - for 327 districts of West Germany: 4718 observations (1 missing)
  - for 112 districts of East Germany: 1071 observations (3 missings)
Results

- Typical s-shaped curve of diffusion:

  - later start of the process of diffusion in East Germany
  - slower speed of process of diffusion in East Germany

  - Possible explanation:
    - shortage in supply as a consequence of the communist regime forced self help and informal exchange among East German people thus no need for an institutionalized form of exchange in East Germany
Results

• Cartographical picture of contagion of German landscape with Local Exchange Systems

  Formation of Exchange Systems 1988-2005 on district level

• Until 1992 only few Local Exchange Systems
  – primarily in remote rural areas of Northern and South-West Regions of Germany

• Since 1993 movements’ spreading
  – concentration on urban areas

• Local Exchange Systems in 2005
  – in 43,3% of all German districts
  – East-West difference
    • more than 50% of West German districts
    • less than 25% of East German districts
Results

Tauschringgründungen in der Bundesrepublik Deutschland
von 1988 bis 2005
## Foundation of first Local Exchange System in West German district

<table>
<thead>
<tr>
<th>Variable</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
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<tbody>
<tr>
<td></td>
<td>(2.172)***</td>
<td>(1.984)***</td>
<td>(1.877)***</td>
<td>(1.681)***</td>
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<td>In time</td>
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<td>3.639</td>
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<td>(0.923)***</td>
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<td>district size/thousand</td>
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<td>0.003</td>
<td>0.003</td>
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<td></td>
<td>(0.001)**</td>
<td>(0.001)*</td>
<td>(0.001)**</td>
<td>(0.001)***</td>
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<tr>
<td>unemployment rate</td>
<td>0.025</td>
<td>0.045</td>
<td>0.030</td>
<td>-0.038</td>
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<tr>
<td></td>
<td>(0.051)</td>
<td>(0.053)</td>
<td>(0.053)</td>
<td>(0.029)</td>
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<tr>
<td>% green party</td>
<td>0.230</td>
<td>0.238</td>
<td>0.225</td>
<td>0.073</td>
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<tr>
<td></td>
<td>(0.047)***</td>
<td>(0.049)***</td>
<td>(0.047)***</td>
<td>(0.021)***</td>
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<td>microlevel network</td>
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<td>lagged</td>
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<tr>
<td></td>
<td>0.145</td>
<td>0.145</td>
<td>0.111</td>
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<tr>
<td></td>
<td>(0.092)</td>
<td>(0.090)</td>
<td>(0.042)**</td>
<td></td>
</tr>
<tr>
<td>media lagged</td>
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<td></td>
<td>0.081</td>
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<td>0.065</td>
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<tr>
<td></td>
<td>(0.037)**</td>
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<td>(0.034)*</td>
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<td>(0.000)***</td>
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<td>Log-Likelihood</td>
<td>-613.884</td>
<td>-612.347</td>
<td>-609.996</td>
<td>-582.930</td>
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</tbody>
</table>

(***): 1% significance, (**) 5% significance, (*) 10% significance; standard error in brackets
## Foundation of first Local Exchange System in East German district

<table>
<thead>
<tr>
<th>Variable</th>
<th>(1)</th>
<th>(2)[1]</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-3.358 (1.447)**</td>
<td>-3.675 (0.144)**</td>
<td>-3.547 (1.514)**</td>
<td>-1.390 (2.017)</td>
</tr>
<tr>
<td>In time</td>
<td>0.031 (0.294)</td>
<td>-0.157 (0.327)</td>
<td>-0.163 (0.325)</td>
<td>3.208 (1.593)**</td>
</tr>
<tr>
<td>district size/thousand</td>
<td>0.009 (0.002)***</td>
<td>0.008 (0.002)***</td>
<td>0.008 (0.002)***</td>
<td>0.007 (0.002)***</td>
</tr>
<tr>
<td>unemployment rate</td>
<td>-0.091 (0.062)</td>
<td>-0.070 (0.069)</td>
<td>-0.078 (0.073)</td>
<td>-0.061 (0.077)</td>
</tr>
<tr>
<td>% green party</td>
<td>0.074 (0.142)</td>
<td>0.118 (0.135)</td>
<td>0.107 (0.142)</td>
<td>0.178 (0.144)</td>
</tr>
<tr>
<td>micro-level network-1</td>
<td>0.069 (0.040)*</td>
<td>0.068 (0.040)*</td>
<td>0.064 (0.039)</td>
<td></td>
</tr>
<tr>
<td>media-1</td>
<td></td>
<td>0.035 (0.099)</td>
<td>0.009 (0.119)</td>
<td></td>
</tr>
<tr>
<td>No. systems</td>
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<td>-0.301 (0.180)*</td>
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<tr>
<td>No. systems²</td>
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<td>0.001 (0.003)</td>
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<tr>
<td>No. observations</td>
<td>1071</td>
<td>1071</td>
<td>1071</td>
<td>1071</td>
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</tbody>
</table>

[1] simple cloglog modell without gamma-distributed heterogenity due to problems with ML estimation

December 7th, 2006  Diffusion and Growth of Local Exchange Systems
Results

• Contagious effects:
  – spatial dimension in both parts of Germany for systems’ spreading relevant
  – media forces in both parts of Germany systems’ growth (east: lack of significance)

• Density dependence:
  – expected effects in West Germany
  – no effects in East Germany
    • critical mass not reached yet to provoke strong competition

• District specific variables:
  – expected effects in West Germany
    • especially ideological orientation
  – effects in East Germany
    • only effect of urbanization
    • little involvement in green politics in East Germany
Discussion

• No quantitative data for testing effects of political entrepreneurs
  – no information about point of time of agitation
  – no information about travel routes of agitators
  – exploring mesolevel-network impossible

• Some qualitative aspects
  – Michael Linton’s traveling throughout English-speaking countries
  – formation of Exchange Systems in the North of Bavaria due to traveling of an activist
  – import of the idea to Munich from experiences with Exchange Schemes in Great Britain
  – organizing annual meetings on national level to gain popularity
  – internet resources and data archives concerned with exchange systems for spreading
    • Tauschringarchiv (Klaus Kleffmann)
    • Tauschringportal, etc.
Outlook

• Application of various theories on diffusion of innovations on social movements
  – well suited for explaining the growth and spreading of local exchange systems

• Social movements strong ideological approach
  – combining common theories on diffusion of innovations with framing theories of social movement research
  – first impression on social movements from this perspective
  – further research on this topic needed

• Next steps
  – analyze the impact of these variables and the existence of an Exchange System on the founding rate of further systems within a district (multiple events)
  – analyze systems’ growth and survival in Germany
Many thanks for your attention!