Mining Beyond Coal in Appalachia

Lessons in Economic Reimagination and Redevelopment

Fluney Hutchinson, Laura Lievre, Calvin Wright, Sam McQuillen (Capt.)

EEGLP Lafayette College

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Why CCED is important

- War on Poverty has failed. Central Appalachia continues to be distressed and systematically impoverished.
- Culture is layered, rich, diverse and attractive
- Region must search for and pursue its own economic development.
What’s the Matter With Eastern Kentucky?
NYT Magazine June 26, 2014
Took six measures available for every US county (education, income, joblessness, disability, life expectancy, and obesity).

Eastern Kentucky scored worst nationally.

Discussed failure of government policies.

Concluded that de-populating the region may be best policy response.
Extraordinary example of how liability mapping can lead the “expert problem solvers” to “interesting solutions.”

Essence, when government policies fail, it is “self-evident” that there is little value in the community or region.

That is, outside of a reliance on government’s expertise, projects and financing, communities in distress have little capacity and will for self-development through exercising voice and agency.
Asset Mapping

- Asset mapping focuses on identifying latent and under-utilized assets that are not attaining their full value in the marketplace.
- After these assets are mapped, a strategic plan is developed so as to realize the value of these assets.
- The collaborative process focus buttresses the asset-mapping objective.
Appalshop Core Assets

- **Authentic Voice**: Highlighting first-voice narratives in order to create and share knowledge.
- **Appalachian Humanness**: Celebrating cultural diversity in order to break down stereotypes and add value to the Appalachian experience.
- **Cultural Sustainability**: Preserving and perpetuating the cultural value of Appalachia through the support of traditional and contemporary forms of cultural expression.

Each of these core assets is integral to and actualized by Appalshop’s entire body of work. Listed below are three examples of each of these assets in practice.

- **Appalshop Films’ catalog comprising more than 100 documentary films**
- **The Appalachian Media Institute’s year-round youth media training and production**
- **Roadside Theater’s community cultural development performance methodology**
- **Appalshop as a civic space, presenting and broadcasting community forums, performances, film screenings, and more**
- **WMMT-FM, Appalshop’s community radio station, the 24-7 regional voice for mountain people’s music, culture and current affairs**
- **Appalshop’s international exchange work engaging Appalachian artists with communities in China, Indonesia, Wales and elsewhere**
- **Appalshop Archive’s creative placemaking initiatives centered on catalyzing community cultural assets**
- **Traditional Music Project’s youth music education program**
- **June Appal Recordings’ catalog of over 85 albums documenting traditional and contemporary Appalachian musicians**
Technology Based Asset Mapping

Laura Lievre
Mathematics, French
Whitman ‘49 Fellow
Lafayette College ‘19
Background

- Culture-based economies have key draw - tourism - which relies on accessibility
  - Obvious geographical impediment for Central Appalachia
  - Due to economic decline, we can determine that Appalachia’s inaccessibility outweighs the consumers’ desire to travel into the region to experience the rich culture
  - How can we change this? (i.e. how an area’s inaccessibility can be an asset instead of an impediment)

- Our paradigm: a process of commoditizing culture through a technological highway as development and community wealth
Location-based Data

- Currently, geotargeting employs individuals’ past locations and preferences to deliver the “right message at the right time.”
  - Used to increase local business traffic, app downloads, ticket sales
- How we used it
  - Compiled various data to pinpoint locations
    - Appalshop products held in libraries
    - Bluegrass festivals
    - Migration patterns from census data
    - Ebay sales - “Bluegrass,” “Banjos,” June Appal recordings
  - Gives representation of shared cultural appreciation
    - Let’s us determine where current demand for cultural-specific products exist
Importance of Location-based Data

- Need to implement strategies that can perform up to speed with the fast-paced, technologically-driven culture of today
- Cost effective, eliminates geographical barriers, and has the potential to drastically expand sales
- Maximize efficiency within an organization
- Integration into competitive market exchange as social and economic value creation
- Clear relationship where Roadside Theater performed and where people buy items
- Sales & outreach centralized in Appalachia
- Shows points of shared cultural appreciation
- Clear demand beyond Central Appalachia
- Shows points of shared cultural appreciation
- Clear demand beyond Central Appalachia
Comparison between direct impact and potential impact
Many areas not so heavily overlapped
Note vertical height differences
- Shows pinpointed demand
- Compilation of all data
Letcher County Culture Hub (LCCH)

LCCH will focus on activities related to the:

- Creation
- Development
- Production
- Protection
- Coordination, and
- Distribution

of Appalachian cultural and creative goods and services for local, regional, national and international consumption on a commercial basis.
Social Capital: The Case for the Letcher County Culture Hub

Calvin Wright

Economics, French Certificate in Finance
Whitman ‘49 Fellow
Lafayette College ‘20
Motivation

- What is Social Capital?

- Social Capital and Development: A new Paradigm?
  - Previous Literature.

- Social Capital Allows for:
  - Lower transaction costs, bureaucracy

- So, how do you measure it?
  - Social Network Analysis
Social Network Analysis (SNA)

• Provides a Framework for investigating social structures through the use of networks and graph theory.

• Key Metrics:
  • **Centrality** - Ratio of number of links
  • **Betweenness** - the extent to which a node lies between other nodes in the network
  • **Closeness** - degree with which an individual is nearer to all others in a network

• Previous use of SNA:
  • MASS MoCA: Massachusetts Museum of Contemporary Art
Calculations: Centrality

Centralization is calculated as the ratio between the numbers of links for each node divided by the maximum possible sum of differences. Centralization provides a measure of the extent to which a whole network has a centralized structure. It is measured as follows:

$$R = \frac{\sum_{j=1}^{g} \{ \max(Di) - Di \}}{(g - 1)^2}$$  \hspace{1cm} (1)$$

where $D_i$ represents the number of actors in the network that are directly linked to the actor $j$ and
Calculations: Betweenness

Betweenness is defined as the extent to which a node lies between other nodes in the network.

Here, the connectivity of the node’s neighbors is taken into and reflects the number of people who are connecting indirectly through direct links. It is calculated as follows:

\[ c_b(n_j) = \frac{xx}{(n-2)(n-1)} \]  \hspace{1cm} (2)

where \( c_b(n_j) \) denotes the standardized betweenness centrality of node \( j \), \( g_{kl}(n_j) \) represents the number of geodesics linking \( k \) and \( l \) that contain \( j \) in between.
Calculations: Closeness

Closeness refers to the degree with which an individual is nearer to all others in a network either directly or indirectly. Further, it reflects the ability to access information through the “grapevine” of network members. It is calculated as follows:

$$c_c(n_j) = \frac{n - 1}{\sum_{k=i, j=k}^n d(n_i, n_j)}$$

(3)

where $c_c(n_k)$ defines the standardized closeness centrality of node $j$ and $d(n_i, n_j)$ denotes the geodesic distance between $j$ and $k$. 
## The Case for LCCH (1)

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Summary Thoughts

When compared to similar studies, the social capital seems low for LCCH

- Results imply too many organizations disparate and disconnected

- Hence high transaction costs and critical impediment to success of LCCH
Pursuing Letcher County’s Imagined Future via Input-Output Analysis

Sam McQuillen

International Affairs, Economics
Whitman ‘49 Fellow
Lafayette College ‘19
Introduction to Input-Output Analysis

- Input-output analysis describes the economic linkages within a region
  - “Type I” (Indirect) multipliers measure trade between two firms
  - “Type II” (Induced) multipliers measure household expenditures
- High multipliers indicate that inputs and goods are sourced locally
- Low multipliers indicate that inputs and goods are primarily imported
Input-Output Matrices (2016, IMPLAN Data)

- Describes local trade between either sectors or households
- Rows are the spenders, columns are receivers

### Input (Mining)
- $7,052,903

### Output (Mining)
- $332,952

### Total professional services
- $119,038,874

### Total Educational/Health/Recreation Services
- $24,530,668
Input-Output Data as a Forecasting Tool

- **Problem**: Input-output data describes the past rather than the future

- **Our approach**: Re-calibrating estimates through examining the input-output data of established cultural economies

- Input-output data from national cultural economies
Process of determining culture hubs

- Three selected: One small, one medium, and one large
- Selected on criteria that reflects the depth of the culture hub’s linkages
  - Co-producing, co-purchasing, co-advertising, co-learning, and co-informing

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Breckenridge, CO

- Conservative path
- Population: 30,257
- Cultural economy based on mountain identity and folk art
- While isolated, pairs cultural economy with skiing industry
Santa Fe, NM

- Median path
- Population: 148,686
- Mixes Spanish colonial influences with Native American and Hispanic culture
- Performance and new wave art is prevalent in Santa Fe
Nashville, TN

- Aspirational path
  - Represents the upper limit that cultural economies may reach
- Population: 1,830,345
- “Music capital of the world”
- Aspirational in nature, must constantly be striven for
Impact Analysis: Appalshop

- What would Appalshop’s impact look like if put into these economies?
  - Data from Appalshop’s publicly available tax information
  - Expenditures divided into four categories according to IMPLAN classifications:
    - Grantmaking, giving, and social advocacy organizations (Roadside Theater)
    - Motion picture and video industries (Archives, media production)
    - Radio and television broadcasting services (WMMT)
    - Other educational services (AMI)
### Results: Grantmaking, giving, and social advocacy

#### Grantmaking, giving, and social advocacy organizations (514)

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- Breckenridge: 21% from industry, **112%** from households
- Santa Fe: 25% from industry, **162%** from households
- Nashville: 78% from industry, **154%** from households
Results: Motion picture and video industries

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- Breckenridge: **80%** from industry, **22%** from households
- Santa Fe: **24%** from industry, **6.8%** from households
- Nashville: **142%** from industry, **192%** from households
### Results: Radio and television broadcasting

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- Breckenridge: 62% from industry, **295%** from households
- Santa Fe: -7% from industry, **93%** from households
- Nashville: 32% from industry, **60%** from households
### Results: Other educational services

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- **Breckenridge:** 47% from industry, **86%** from households
- **Santa Fe:** 50% from industry, **115%** from households
- **Nashville:** 92% from industry, **128%** from households
Conclusion of Input - Output Analysis

- Letcher County: Great potential, but must be strategically developed
  - Capture demand from across country
  - Strengthen social linkages
- Social multipliers have most room to grow
  - Support local businesses
Final Thoughts

Fluney Hutchinson PhD

Economics and Policy Studies
Director of EEGLP and Whitman ‘49 Fellows Program
# Letcher County/Appalshop's Path to Sustained Prosperity

<table>
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<tr>
<th>Initial Conditions and Assets</th>
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<th>Synergistic Opportunity</th>
<th>Capacity for Outcome</th>
<th>Imagined Future</th>
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<td>Appalachian Identity and Humanness</td>
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Economic Impact and Cultural Linkages

- Database
- New Markets
- Supply Chain
  - Synergistic value
  - Synthetic value
- Growth in Economic Development and Community Wealth
Concluding Thoughts

• Strengthening the capacity of residents to exercise voice, agency and ownership over their community affairs is essential to their ability to create communities that they value.

• Such strengthening allows communities to better pursue their aspirational goals of building inclusive, resilient, developmental, and wealth creating communities.

• The project builds the capacity of Letcher County to exercise informed agency in pursuit of community development, and how this process can be enhanced through collaboration in interdisciplinary public scholarship (IPS) with higher education institutions.
Appendix I

Asset Mapping for Community Development
March 2014
Appendix III

Memorandum of Understanding Appalshop – EEGLP
April 2014