

# **THE COMMUNITY ECONOMIC IMPACTS OF MINING**

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# THE COMMUNITY ECONOMIC IMPACTS OF MINING

**Where are we currently:**

- **A moratorium has been put in place to gather more information and think about the future of sand mining in Buffalo County**
- **A study group failed to materialize due to the political discord surrounding the issue.**
- **How do we rebuild trust and communication within the community?**

# THE COMMUNITY ECONOMIC IMPACTS OF MINING

Where are we currently:

- A review of the Buffalo County Economy
- What do we know about the community economics of mining?
- Is Buffalo County ready and what needs to be considered?
- Next steps?

# THE COMMUNITY ECONOMIC IMPACTS OF MINING

## Summary of Findings:

- Mining, as an industry within the U.S., remains inherently unstable through the “flickering effect” but the level of instability seems to be declining over time.
- Ownership structure of the mining companies and the resource itself greatly influence the degree of economic impact and subsequent growth. *Non-local ownership is generally associated with smaller economic impacts and lower local growth levels.*

# THE COMMUNITY ECONOMIC IMPACTS OF MINING

## Summary of Findings:

- The growing pool of “resource curse” literature suggests that robust economic growth and development from resource extraction activities should be considered the exception rather than a general rule.
- Communities that are more heavily dependent on mining for employment tend to experience *greater negative impacts after the mines close than positive impacts while the mines are in operation.*

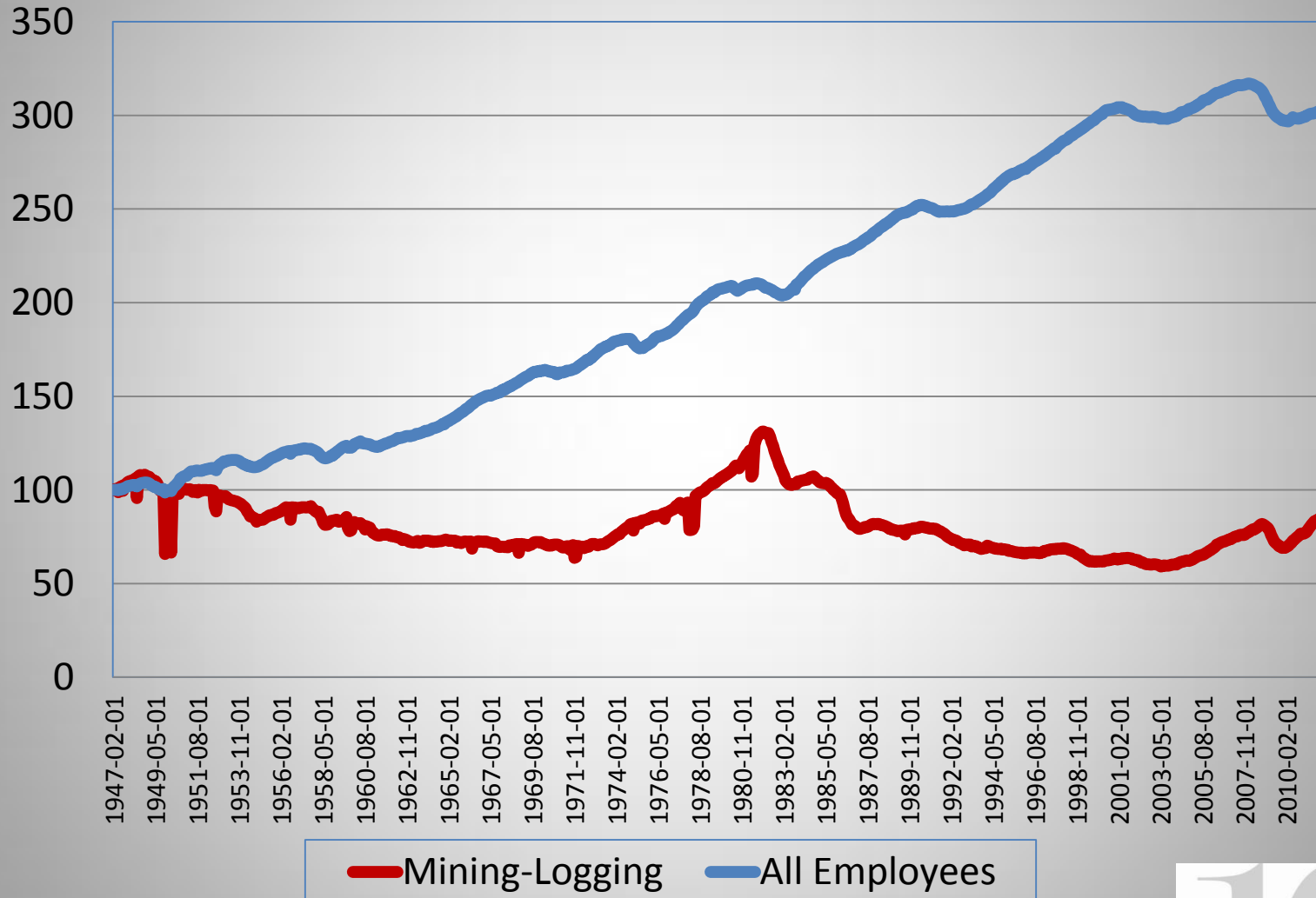
# THE COMMUNITY ECONOMIC IMPACTS OF MINING

## Summary of Findings:

- *One must guard against making blanket generalizations about the impact of mining on the local community.* In many ways mining can provide well-paying jobs leading to lower levels of poverty. But on the other hand, mining activity appears to be associated with poorer overall health levels within the community.
- For remote rural counties we have weak evidence that counties more heavily dependent on mining for employment will tend to have a slower population growth rate. There is more consistent evidence that mining has a positive impact on employment and income growth rates.

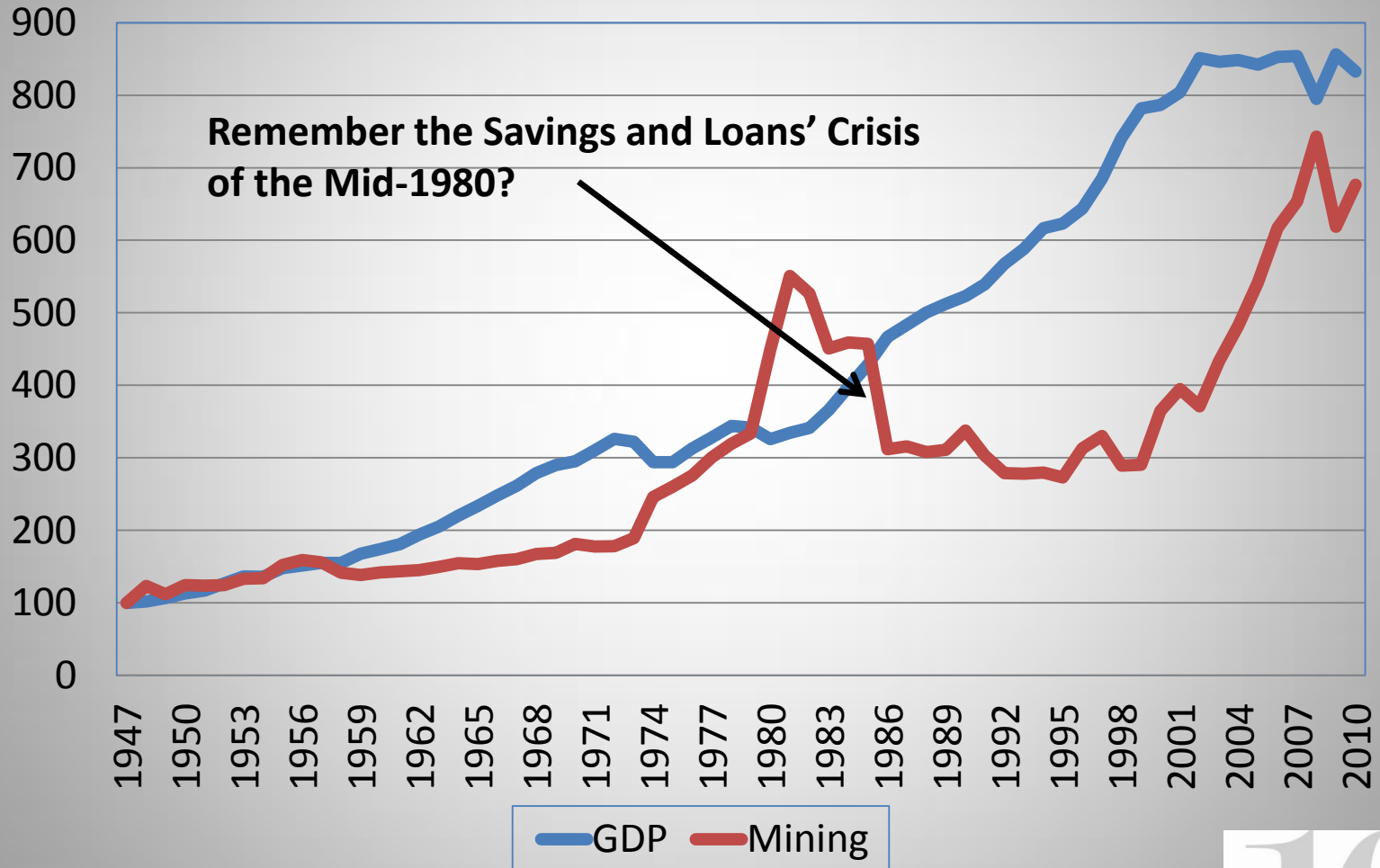
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Figure 1. National Employment: Growth Index



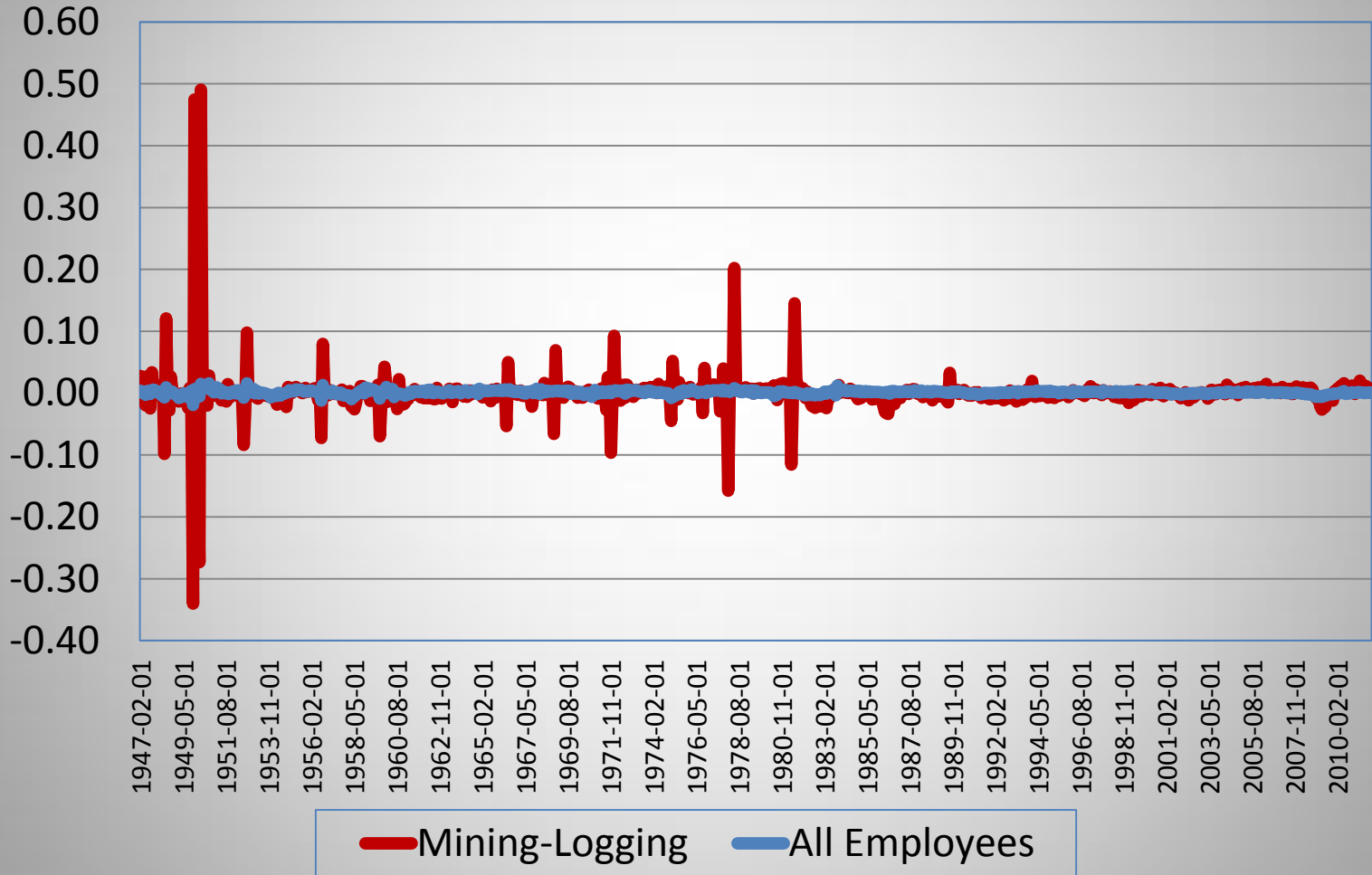
# THE COMMUNITY ECONOMIC IMPACTS OF MINING

Figure 2. National Value Added Income:  
Growth Index Adjusted for Inflation





### Figure 3. National Employment: Monthly Growth Rate



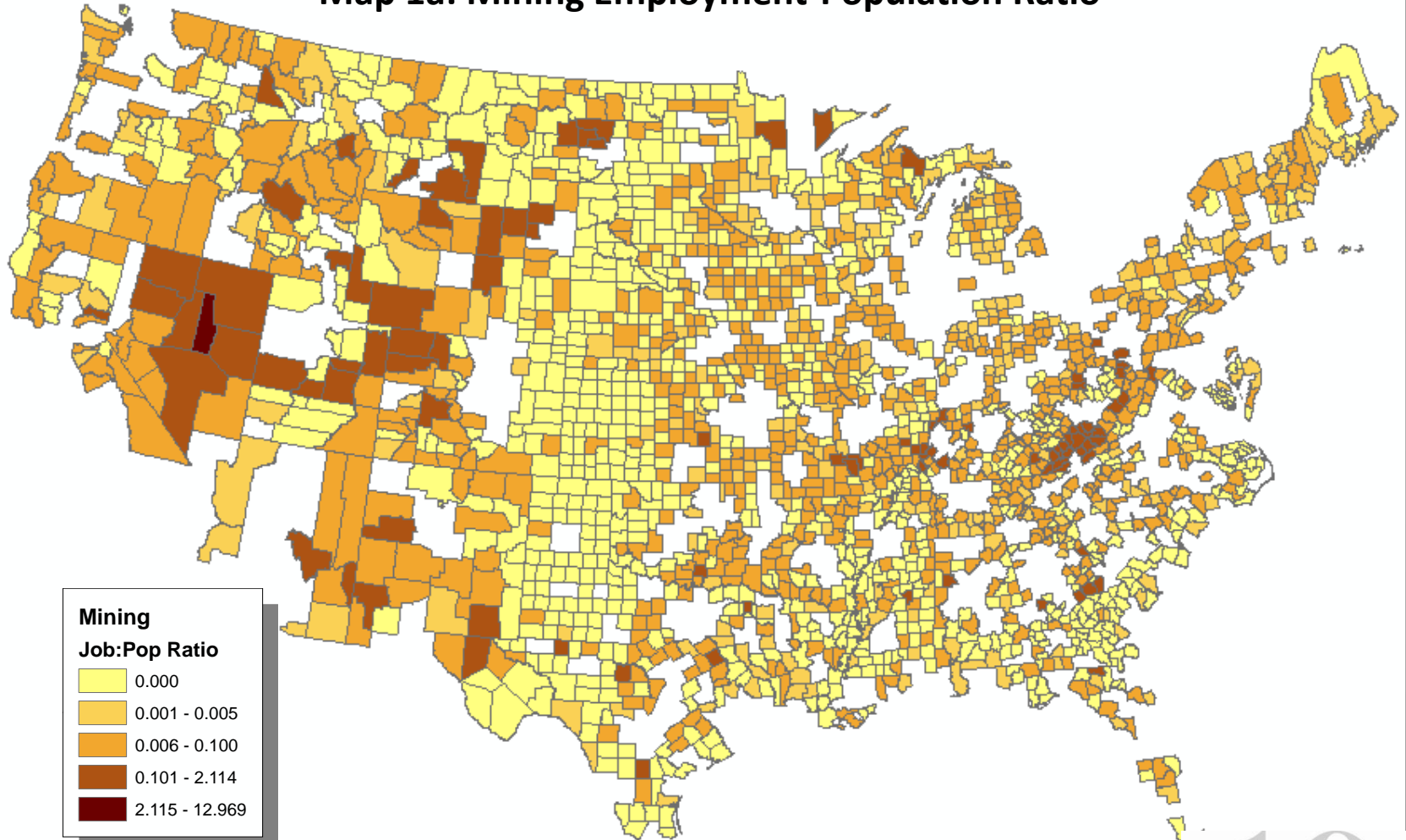
# THE COMMUNITY ECONOMIC IMPACTS OF MINING

## Summary of Findings:

- Mining employment seems to be very closely tied to energy prices.
- Mining employment is inherently unstable, but as mining has moved toward using more capital (machinery) and less labor that employment instability is weakening.

# THE COMMUNITY ECONOMIC IMPACTS OF MINING

Map 1a: Mining Employment-Population Ratio



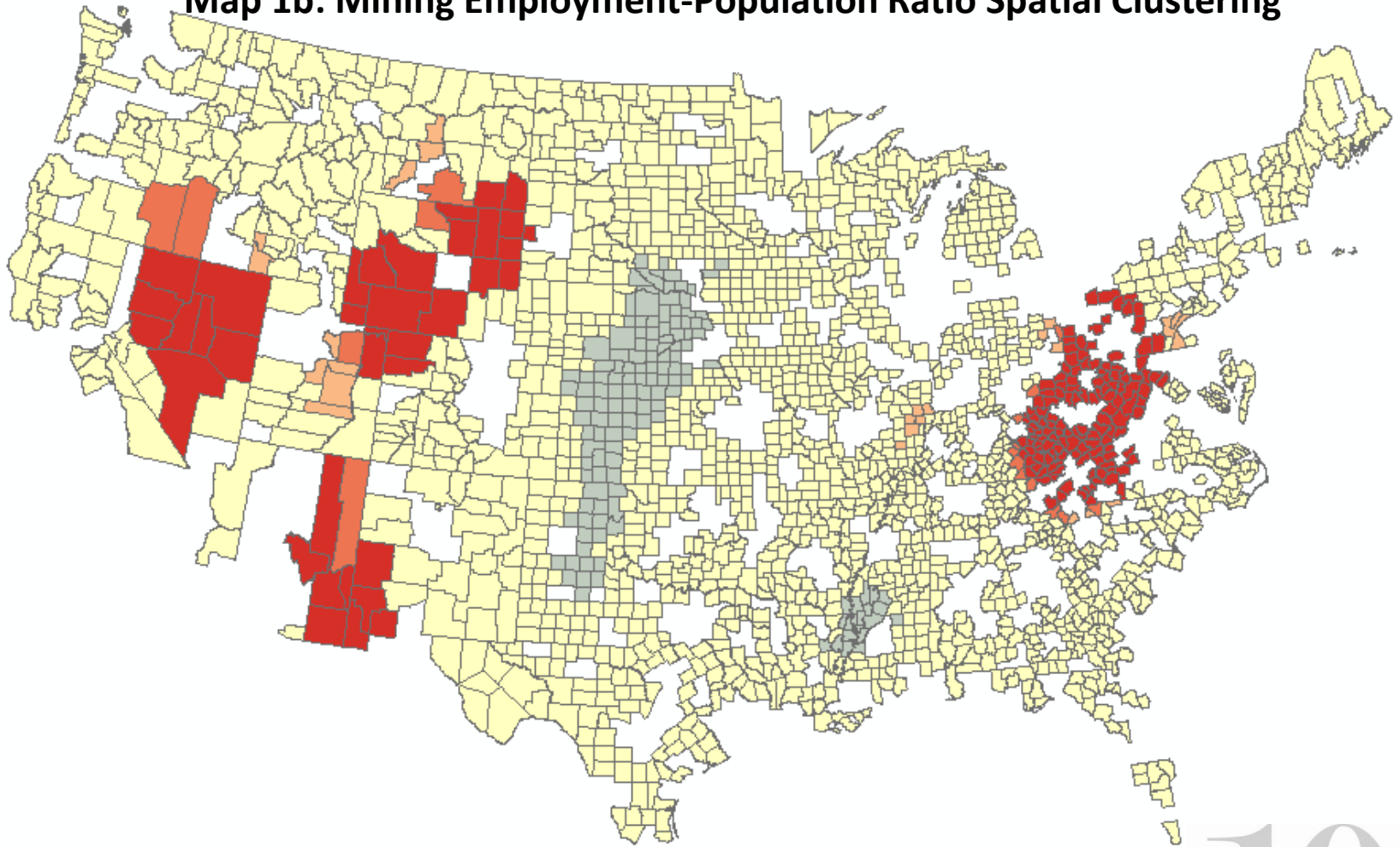
## Mining

### Job:Pop Ratio

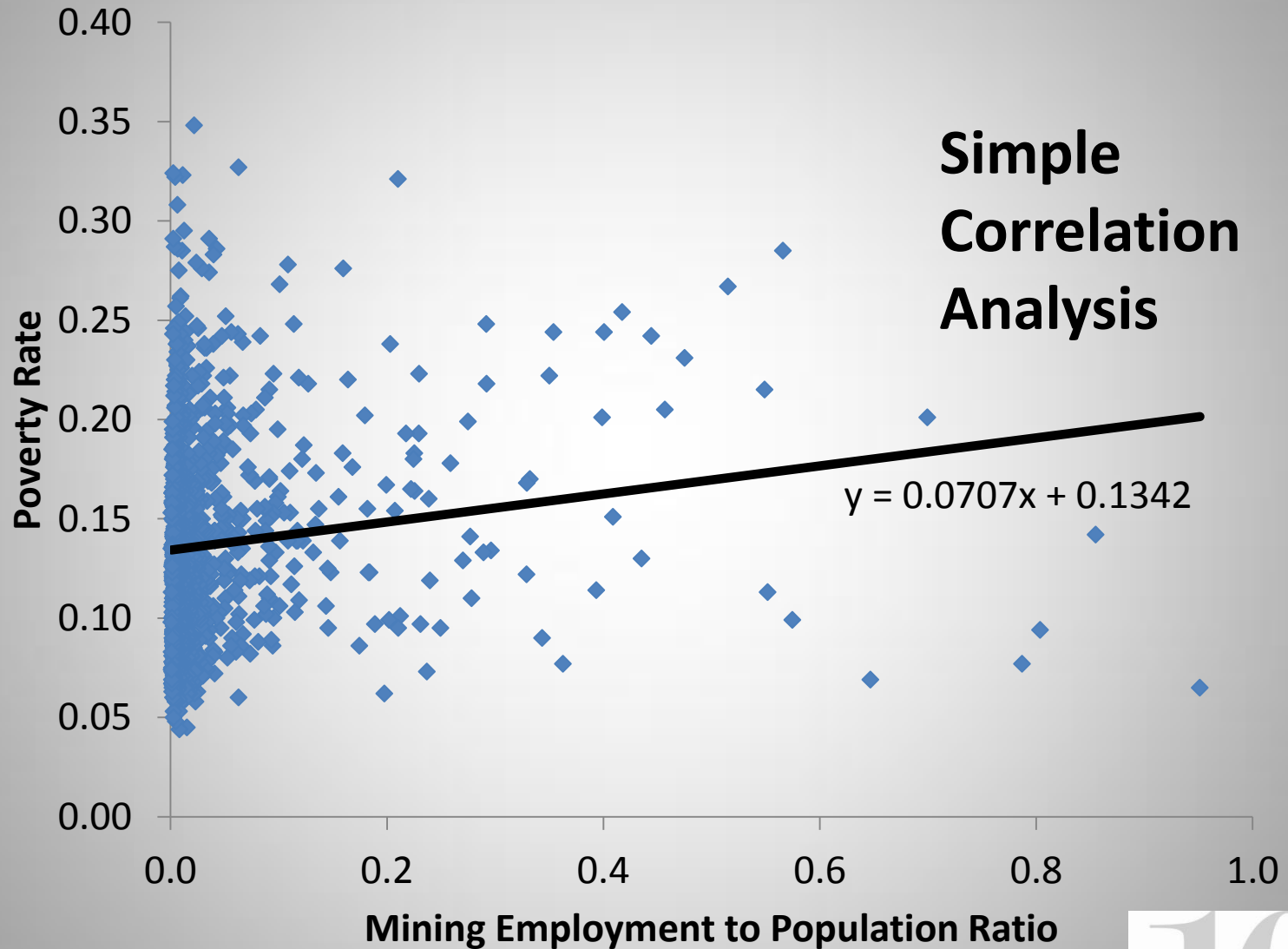
- 0.000
- 0.001 - 0.005
- 0.006 - 0.100
- 0.101 - 2.114
- 2.115 - 12.969

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Map 1b: Mining Employment-Population Ratio Spatial Clustering



# THE COMMUNITY ECONOMIC IMPACTS OF MINING



# THE COMMUNITY ECONOMIC IMPACTS OF MINING

Table 1. Simple Correlations: Mining Employment to Population Ratio, Economics

	Spearman	Kendall Tau b
Poverty Rate	-0.0572 (0.0109)	-0.0401 (0.0125)
Children in Poverty Rate	-0.0505 (0.0245)	-0.0349 (0.0292)
Income Inequality (GINI Coefficient)	-0.1209 (0.0001)	-0.0860 (0.0001)
Unemployment Rate	0.0937 (0.0001)	0.0670 (0.0001)
Violent Crime Rate	0.0202 (0.3688)	0.0133 (0.4071)
Property Crime Rate	0.0676 (0.0026)	0.0468 (0.0035)
Persons over 25 with a High School Degree (%)	0.0537 (0.0169)	0.0366 (0.0220)
Persons over 25 with a Bachelor Degree (%)	-0.0540 (0.0163)	-0.0389 (0.0153)

Marginal significance in parentheses.

- Lower Poverty
- Lower Income Inequality
- Higher Rates of Unemployment
- Higher Property Crime
- Higher Share of People with a HS Degree
- Lower Share of People with a College Degree

# THE COMMUNITY ECONOMIC IMPACTS OF MINING

Table 2. Simple Correlations: Mining Employment to Population Ratio, Health

	Spearman	Kendall Tau b
Under 18 Without Health Insurance (%)	-0.1585 (0.0001)	-0.1124 (0.0001)
Premature death (Years of Potential Life Lost)	-0.0217 (0.3463)	-0.0142 (0.3840)
Poor or fair health (%)	0.0582 (0.0190)	0.0419 (0.0168)
Poor physical health days	0.0946 (0.0001)	0.0683 (0.0001)
Poor mental health days	0.1080 (0.0001)	0.0777 (0.0001)
Low birthweight (%)	-0.0437 (0.0657)	-0.0271 (0.1054)

Marginal significance in parentheses.

- Lower Rates of Youth Without Health Insurance
- Higher Rates of People with “Poor or Fair” Health
- Higher Rates of People with “Poor Physically Healthy Days”
- Higher Rates of People with “Poor Mental Health Days”

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Table 2. Simple Correlations: Mining Employment to Population Ratio, Health

	Spearman	Kendall Tau b
Adult smoking (%)	<b>0.1058</b> (0.0001)	<b>0.0752</b> (0.0001)
Adult obesity (%)	<b>-0.0377</b> (0.0929)	<b>-0.0273</b> (0.0891)
Binge drinking (%)	<b>0.0017</b> (0.9478)	<b>0.0010</b> (0.9548)
Chlamydia rate (per 100k)	<b>-0.0609</b> (0.0066)	<b>-0.0477</b> (0.0029)
Teen Birth Rate	<b>-0.1269</b> (0.0001)	<b>-0.0886</b> (0.0001)
Single-Parent Households (%)	<b>-0.0068</b> (0.7607)	<b>-0.0082</b> (0.6087)
Ozone Days	<b>0.1215</b> (0.0001)	<b>0.1016</b> (0.0001)

Marginal significance in parentheses.

- Higher Smoking Rates
- Lower Obesity Rates (weak)
- Lower Rates of STDs
- Lower Teen Birth Rates
- Higher Number of Poor Air Quality (Ozone) Days



# **THE COMMUNITY ECONOMIC IMPACTS OF MINING**

## **A simple Growth Model for U.S. Rural Counties 2000 to 2007**

- **Change in Population**
- **Change in Employment**
- **Change in Per Capita Income**

**(1) Nonmetro, (2) Adjacent, (3) Non-Adjacent (Remote)**

# THE COMMUNITY ECONOMIC IMPACTS OF MINING

Table 7. Growth Models Nonmetro Not Adjacent Counties

	Population Growth		Employment Growth		Per Capita Income Growth	
Intercept	0.3276 (0.0001)	0.3300 (0.0001)	20.9079 (0.0003)	19.9805 (0.0005)	0.1557 (0.0654)	0.1448 (0.0838)
Population 2000	0.0150 (0.0062)	0.0155 (0.0047)	2.6353 (0.0013)	2.4187 (0.0030)	-0.0298 (0.0094)	-0.0319 (0.0055)
Employment 2000	-0.0119 (0.1904)	-0.0128 (0.1612)	-4.6696 (0.0012)	-4.2826 (0.0029)	0.0237 (0.2072)	0.0275 (0.1441)
Per Capita Income 2000	-0.0127 (0.0187)	-0.0127 (0.0192)	-3.2734 (0.0035)	-3.3050 (0.0031)	-0.0684 (0.0119)	-0.0687 (0.0117)
Percent of the Population Over Age 65 2000	-0.5975 (0.0001)	-0.6092 (0.0001)	-59.4042 (0.0001)	-54.7190 (0.0001)	0.3117 (0.0622)	0.3638 (0.0330)
Ethnic Diversity Index 2000	-0.0111 (0.4540)	-0.0129 (0.3870)	0.6594 (0.8013)	1.4322 (0.5881)	0.0141 (0.6338)	0.0223 (0.4528)
Percent of the Population Over Age 25 with a Bachelor Degree 2000	0.0270 (0.6071)	0.0251 (0.6308)	66.6074 (0.0001)	67.2757 (0.0001)	0.9162 (0.0001)	0.9247 (0.0001)
Percent of the Population Foreign Born 2000	-0.0862 (0.3283)	-0.0919 (0.2923)	-12.1358 (0.4522)	-9.5433 (0.5551)	-0.1149 (0.6135)	-0.0893 (0.6941)
Percent of the Population Speaks A Language Other than English at Home 2000	-0.0214 (0.4438)	-0.0219 (0.4308)	13.8382 (0.0165)	14.0079 (0.0165)	0.1851 (0.0285)	0.1872 (0.0268)
Percent of the Population Living in Same Residence in 2000 as in 1995	-0.3529 (0.0001)	-0.3517 (0.0001)	-13.8276 (0.0364)	-14.3198 (0.0309)	0.3446 (0.0018)	0.3394 (0.0022)
Poverty Rate 2000	-0.1561 (0.0061)	-0.1568 (0.0056)	-27.0966 (0.0039)	-26.9276 (0.0041)	0.0258 (0.8743)	0.0289 (0.8589)
Mining Employment to Population Ratio	<b>-0.0037</b> <b>(0.0451)</b>	—	<b>1.8481</b> <b>(0.0001)</b>	—	<b>0.0163</b> <b>(0.0135)</b>	—
Mining Employment as a Share of Total Employment	—	<b>-0.0548</b> <b>(0.1125)</b>	—	<b>23.4688</b> <b>(0.0006)</b>	—	<b>0.2450</b> <b>(0.0015)</b>
$\bar{R}^2$	0.4017	0.4023	0.1921	0.1959	0.1262	0.1296
F statistic	59.65 (0.0001)	59.81 (0.0001)	21.77 (0.0001)	22.28 (0.0001)	13.62 (0.0001)	14.00 (0.0001)

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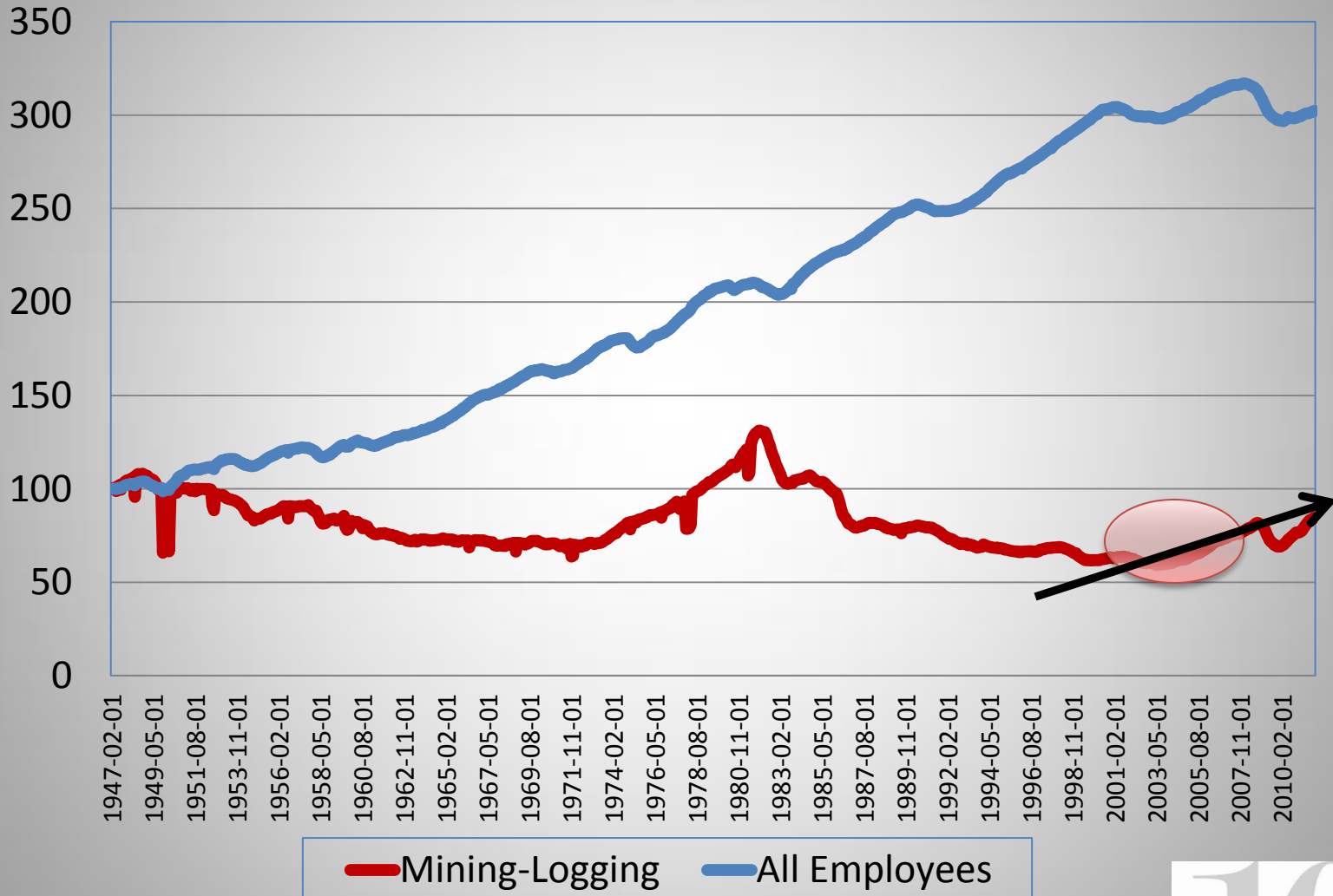
## Results:

**Higher Dependency on Mining for Employment in 2000 is Associated with:**

- **Slower Rates of Population Growth 2000 to 2007**
- **Faster Rates of Employment Growth 2000 to 2007**
- **Faster Rates of Per Capita Income Growth 2000 to 2007**

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## Issues to Consider:

- Are mining operations consistent with other sources of economic activity within the region?
- Is the public infrastructure (transportation networks) sufficient to support the mining operations? Are sufficient public resources (i.e., tax revenues) available to maintain infrastructure in the face of increased deterioration through usage?
- Is there a sufficient pool of labor to meet the needs of the mining operations and replace workers who transfer into the mining industry?



# THE COMMUNITY ECONOMIC IMPACTS OF MINING

## Issues to Consider:

- Is the community making adequate investments to build on the economic activity generated by mining operations?
- Is the community implementing strategies to adjust to mine closures? In other words, are post-mine plans in place and being acted upon?
- Is the community learning from the experiences of other communities that have experienced this type of development?

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