



Natural Gas Drilling and Local
Government Workshop
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Wyoming Boomtowns

Local
Government
Impacts
& Natural
Gas
Drilling

Three Phases of Natural Gas Development

Development Phase (Short Lived/Labor Intensive)

- Well-pad and Access Road Construction
- Local collection pipeline Construction
- Drilling of the Well
- Fracturing of the Well
- Reclaiming some Disturbance

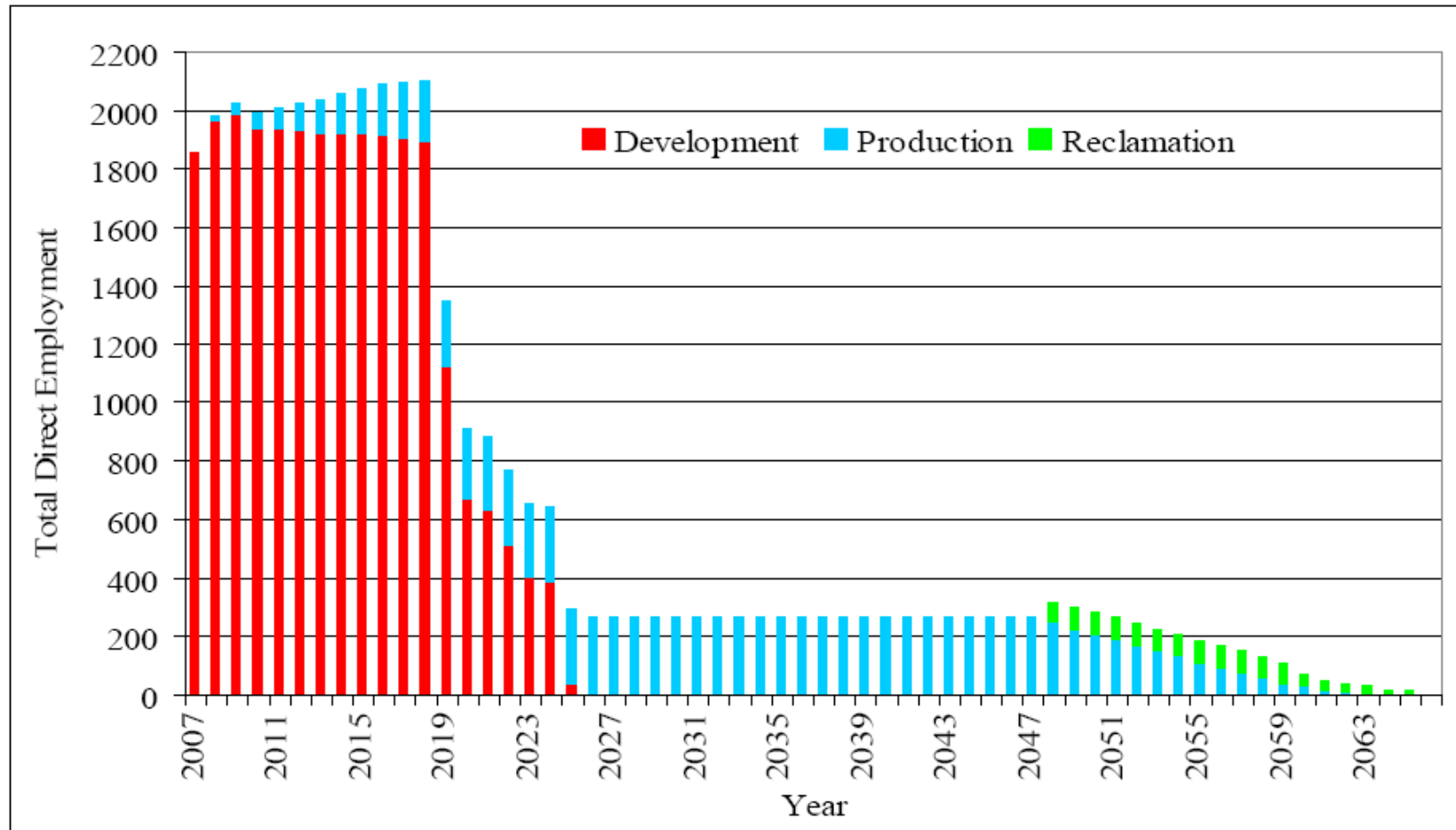
Production Phase (Long lived/Small & Steady Labor Force)

- Trucking Water and condensate from Well Site
- Monitoring Production
- Occasional Well Work-Overs (partially re-drill/re-frac)

Reclamation Phase

- Dismantle and Reclaim well-sites

Jonah/Anticline Fields Direct Workforce Through The Three Phases:

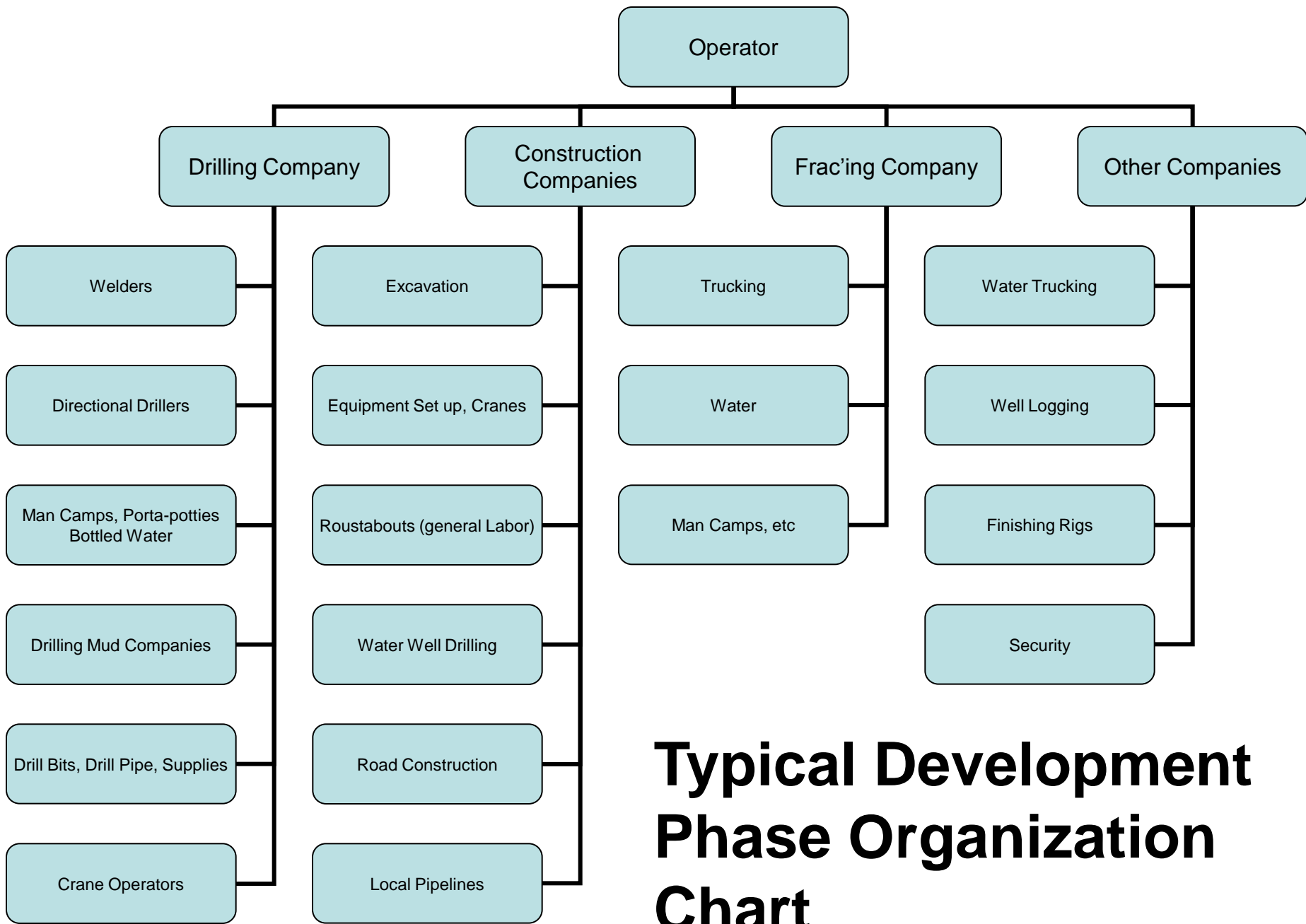


Graph: Ecosystem Research Group/Jacquet

The Number of Rigs Drive Everything

Number of Rigs = Amount of Development = Size of Workforce = **Impact**





Typical Development Phase Organization Chart

The Two Big Workforce Questions:

1) Where will these Workers Come From?

- Locally? (If locally, who will take their old jobs?)
 - Do they have the skills/experience?
 - Will they work very long and hard hours?
- More than Likely to be from Out-of-area

2) Where will they stay?

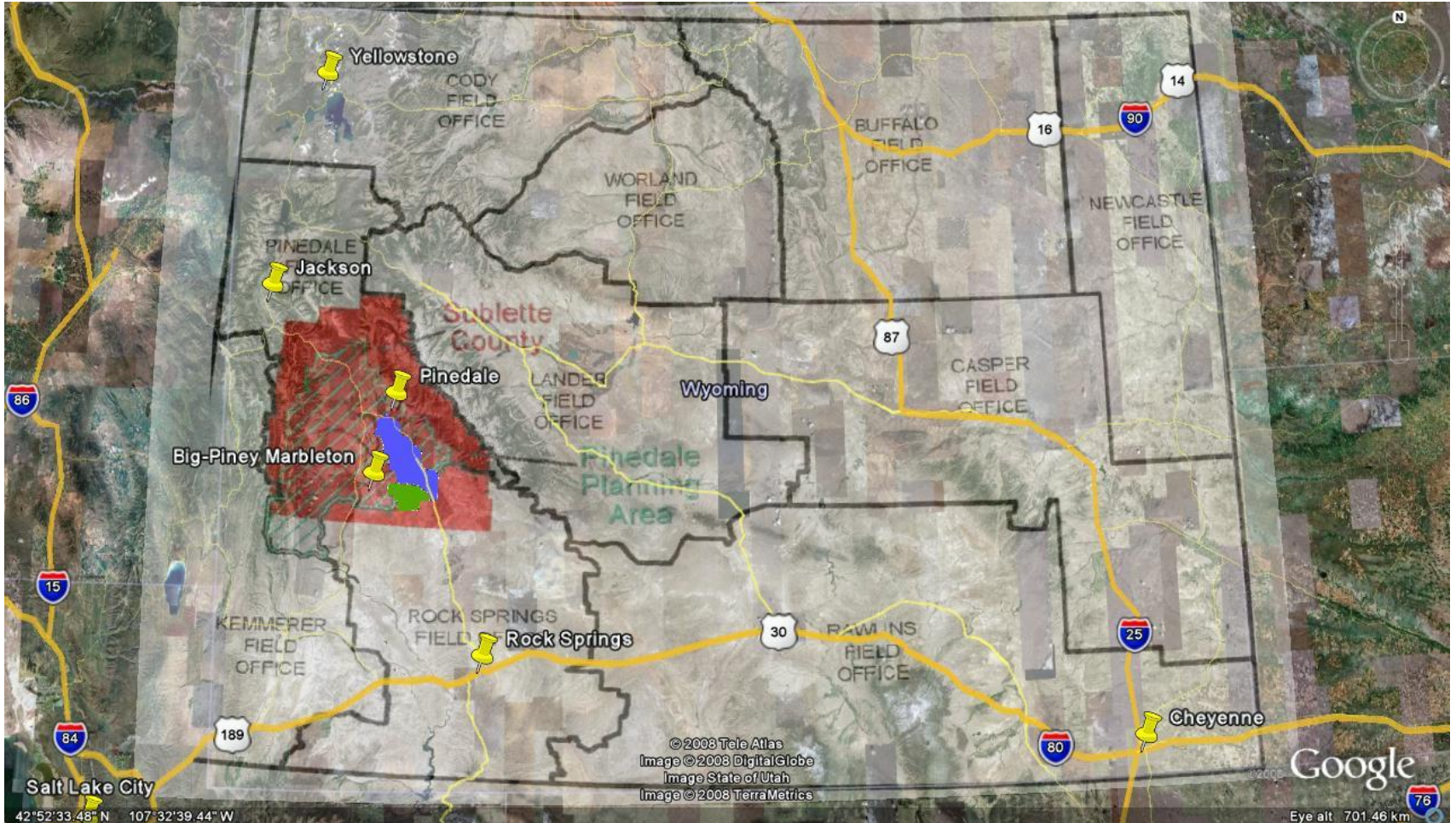
- Which Towns?
- Where are the Company Offices?
- Temporary Residence
 - Motels
 - Man camps
 - Rentals
- Permanent Residence
 - Rentals
 - Home Purchase
 - Bring the Wife and Kids?

Sublette County Wyoming



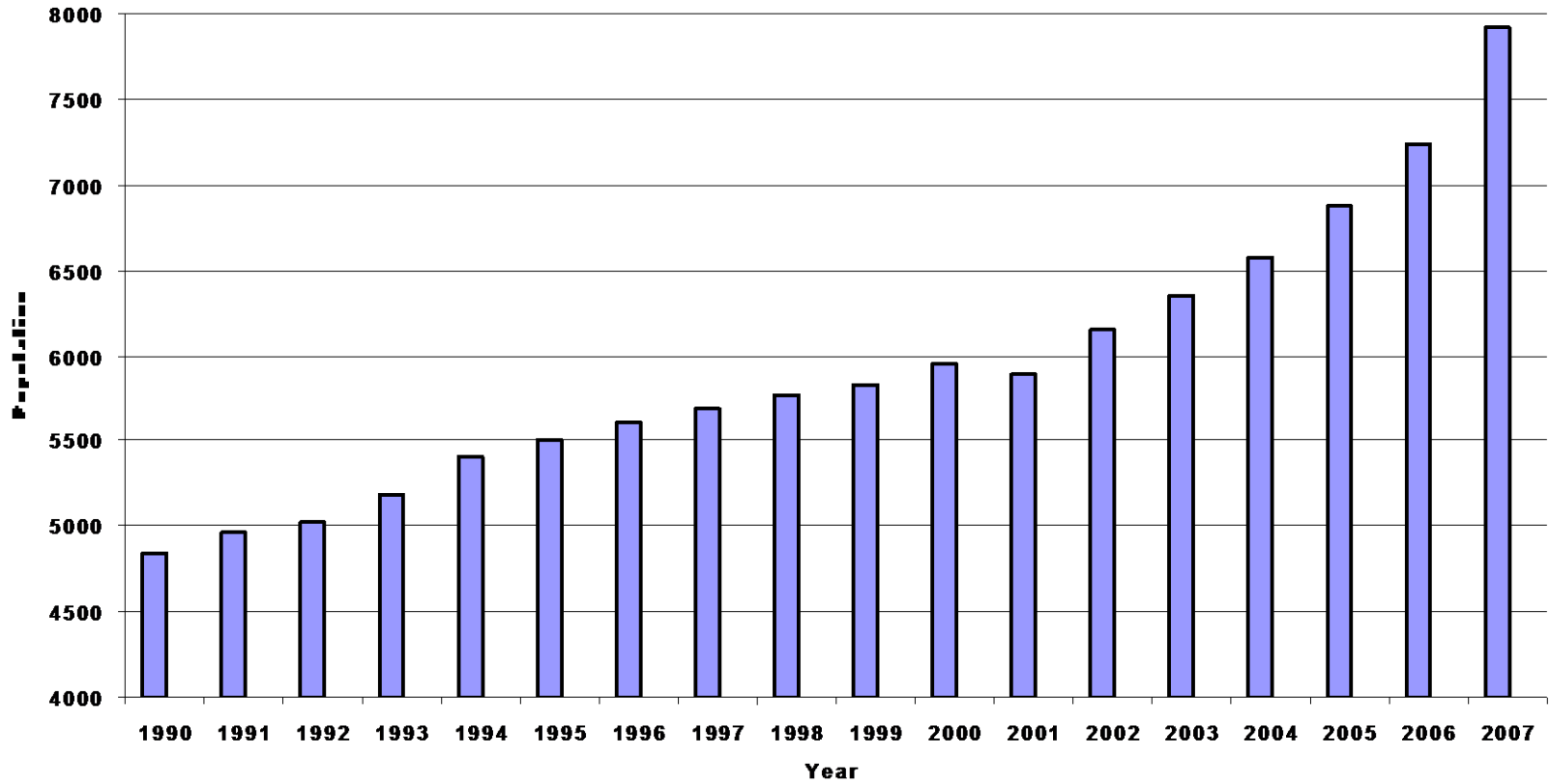
- Pre-boom Population of ~6,000
- Three principal towns – Pinedale, Big Piney, Marbleton
- Mix of tourism economy and production of old gas wells
- Average age increasing – H.S. Graduate Exodus
- Seasonal economy - high winter unemployment
- High % of investment income (not blue collar)

Southwestern Wyoming

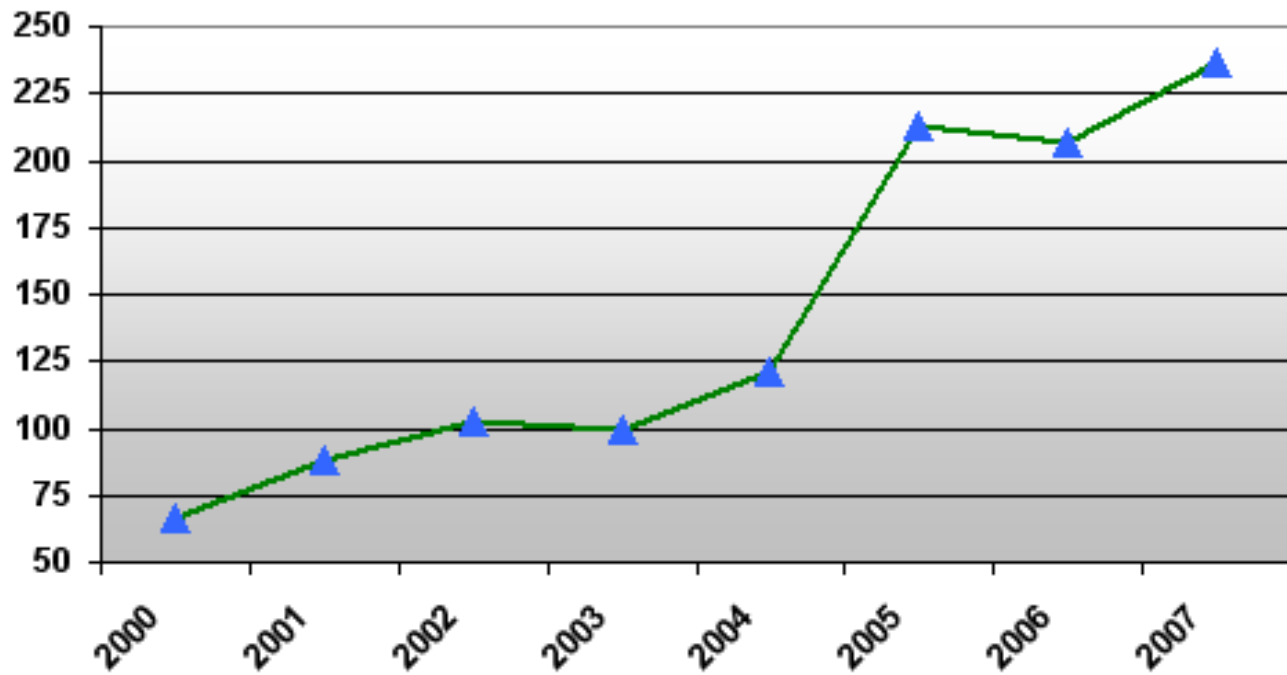


Sublette County Permanent Population Estimates

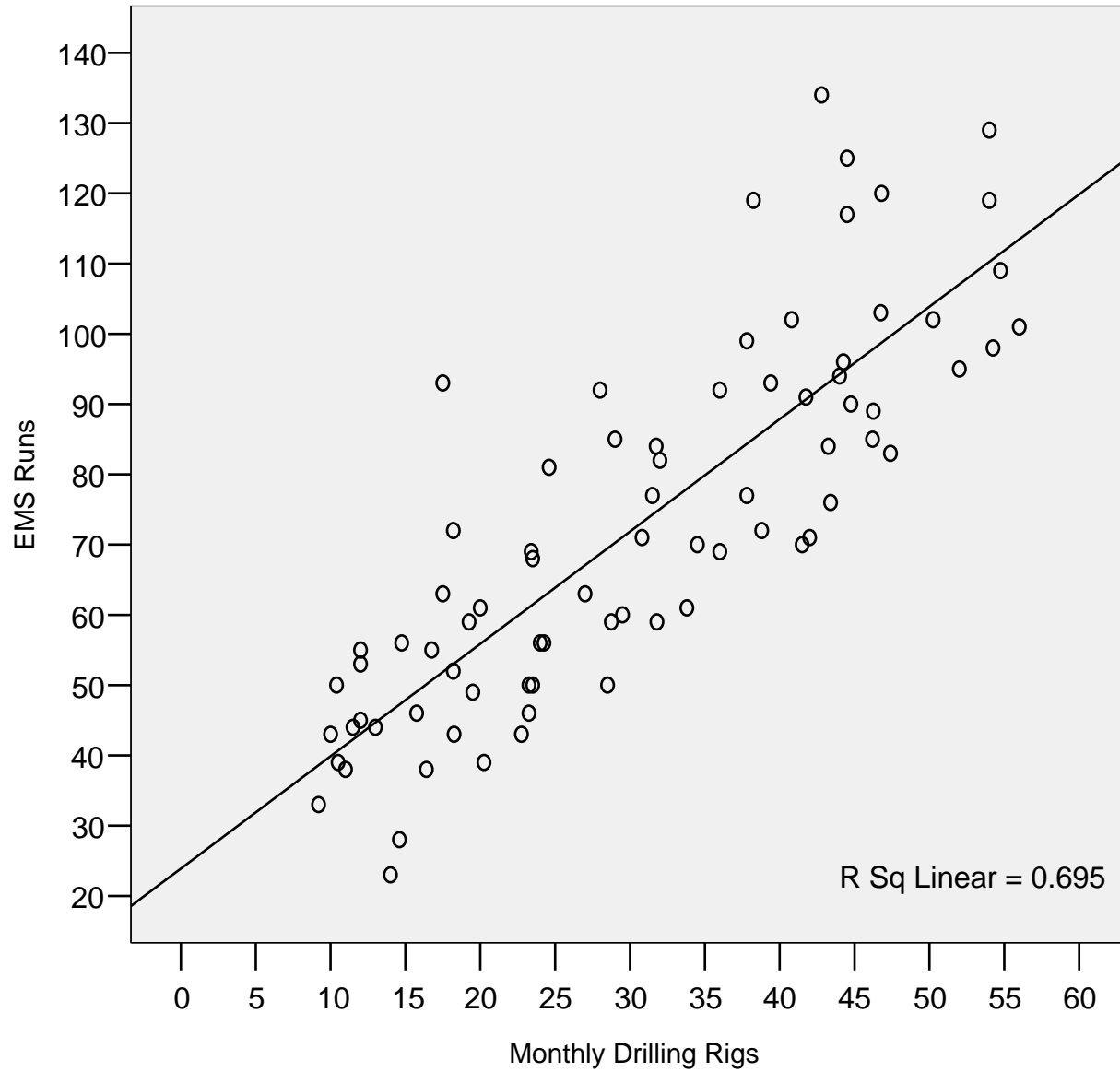
Source: U.S. Census Bureau



Number of New Housing Units Countywide

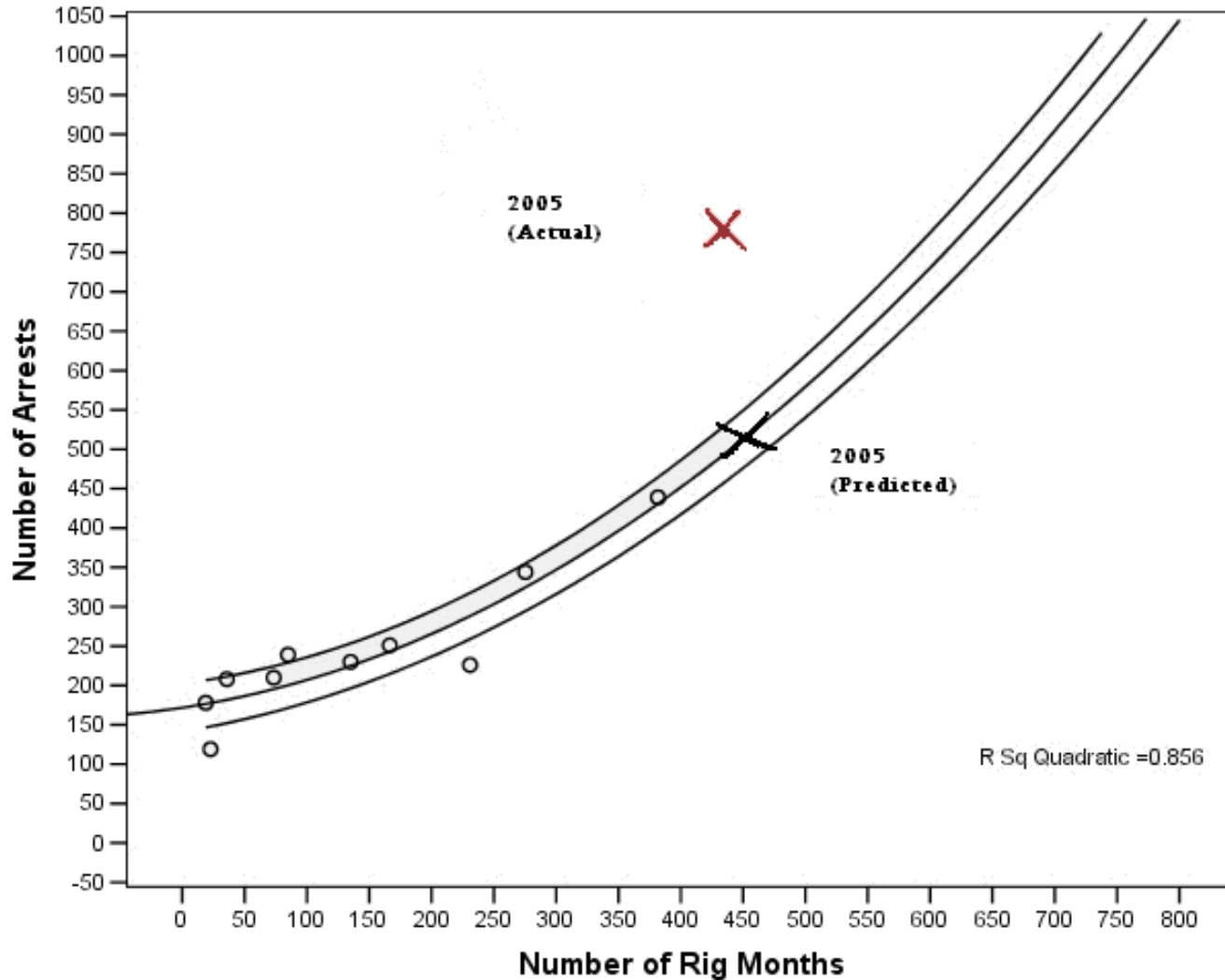


Scatter Plot of Monthly Sublette County EMS runs and Drilling Rigs in Sublette County, WY 2001-2007 (Sig. <.001)



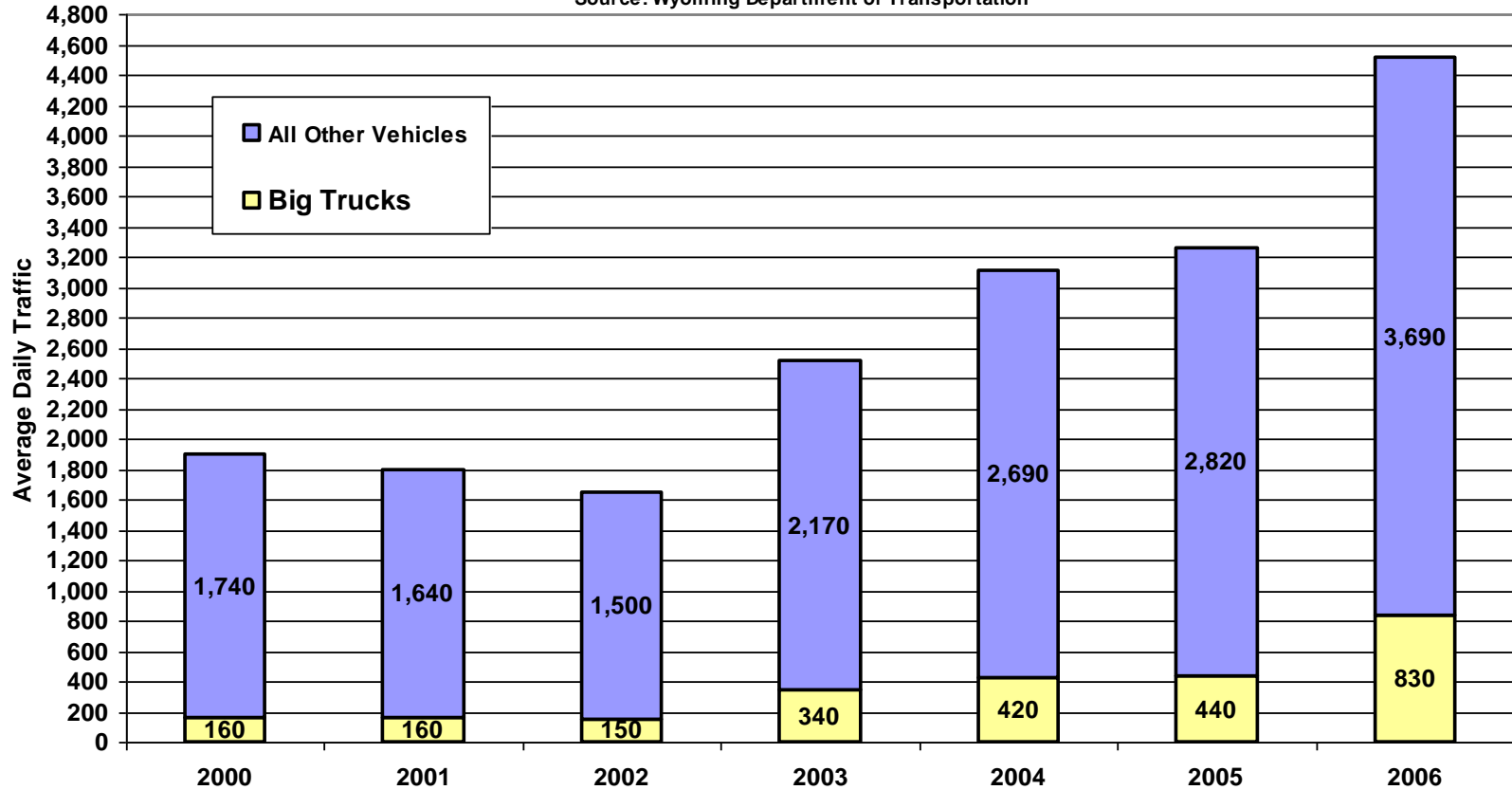
1995-2005

Rig-Based Trend of Sublette Co. Total Arrests



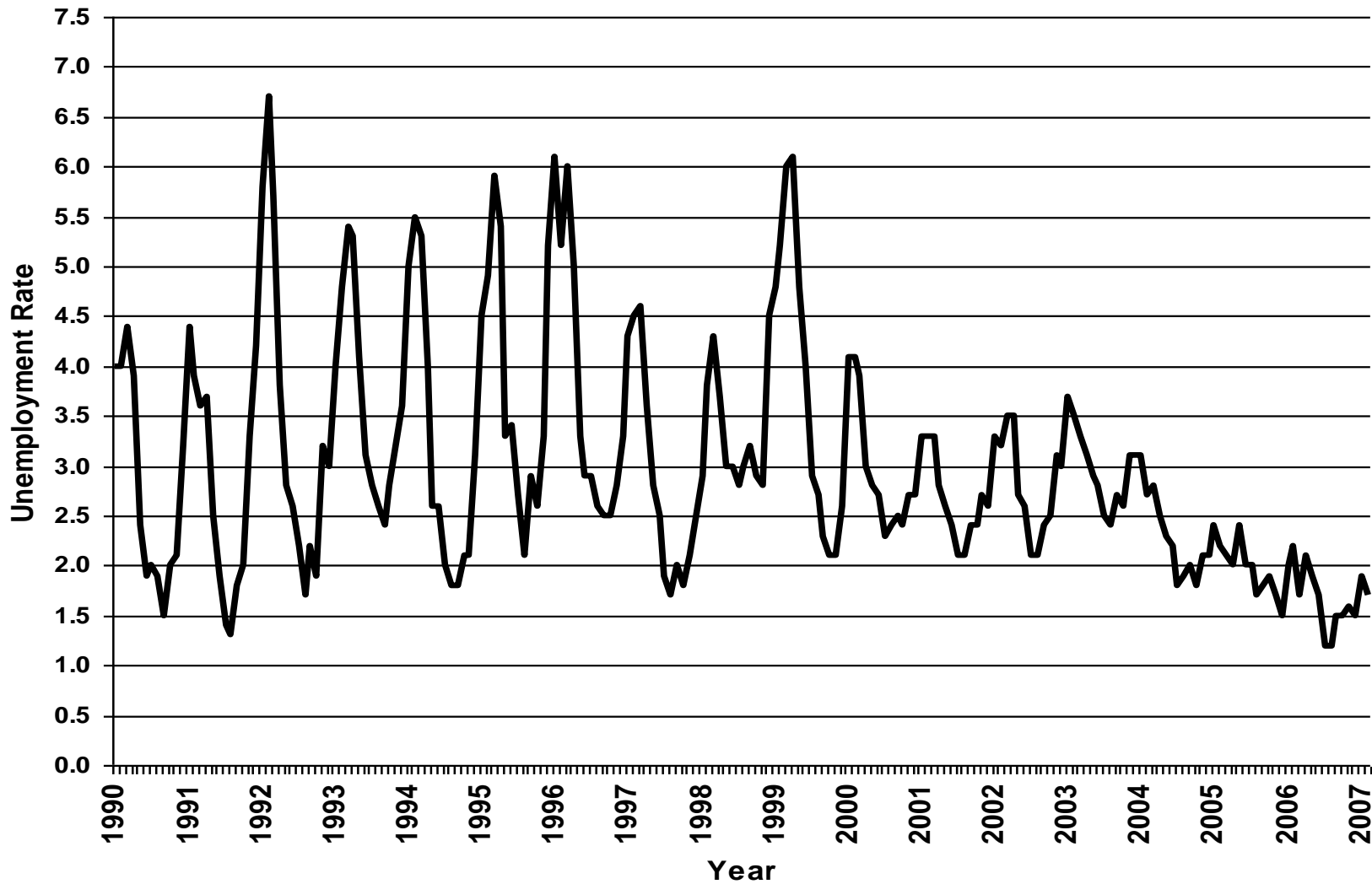
Avg. Daily Traffic Northern Marbleton Town Limits 2000-2006

Source: Wyoming Department of Transportation



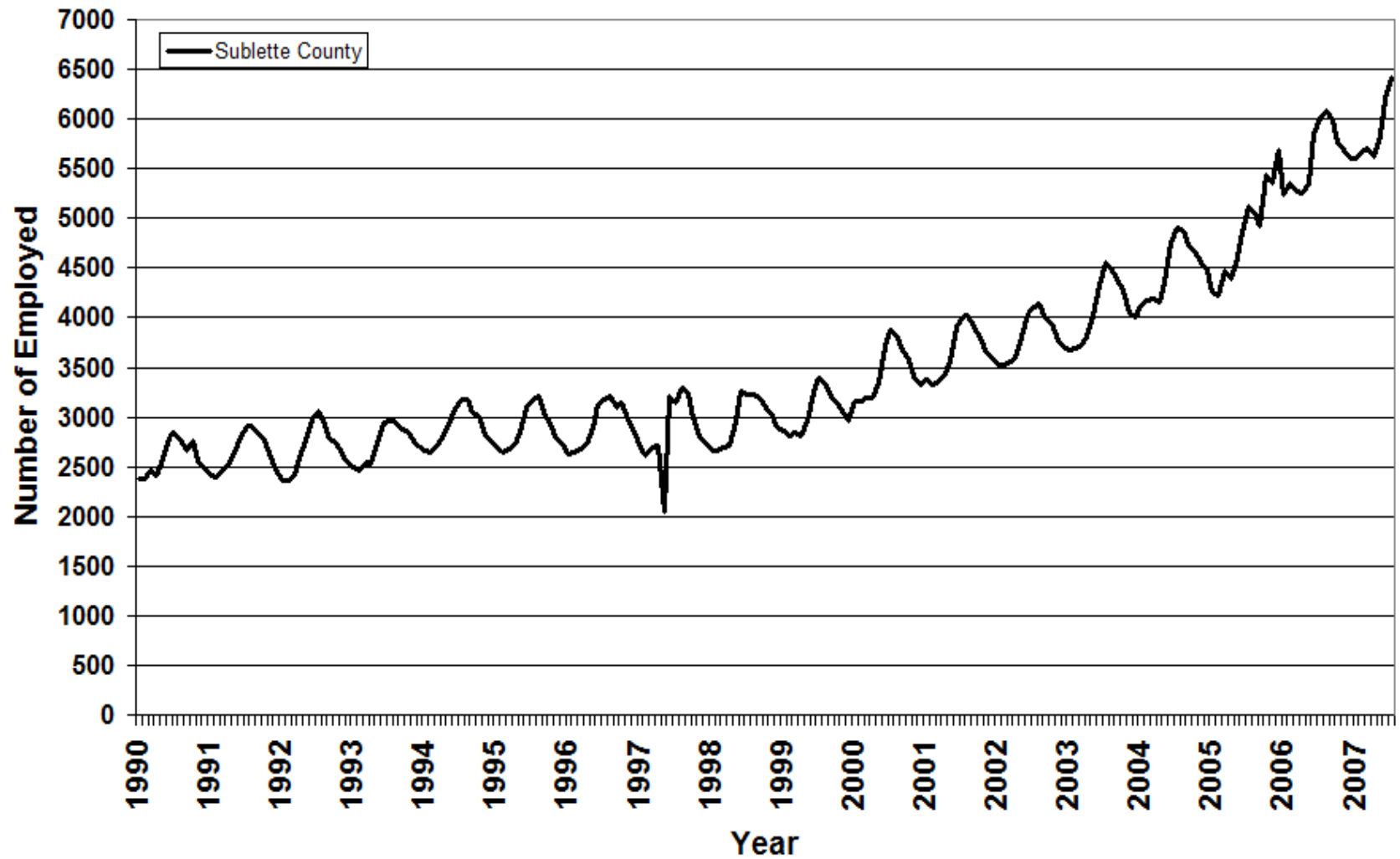
Monthly Sublette County Unemployment Rate 01/90 - 02/07

Source: Wyoming Department of Employment, Research & Planning



Monthly Sublette County Employment Among Residents 01/90 - 07/07

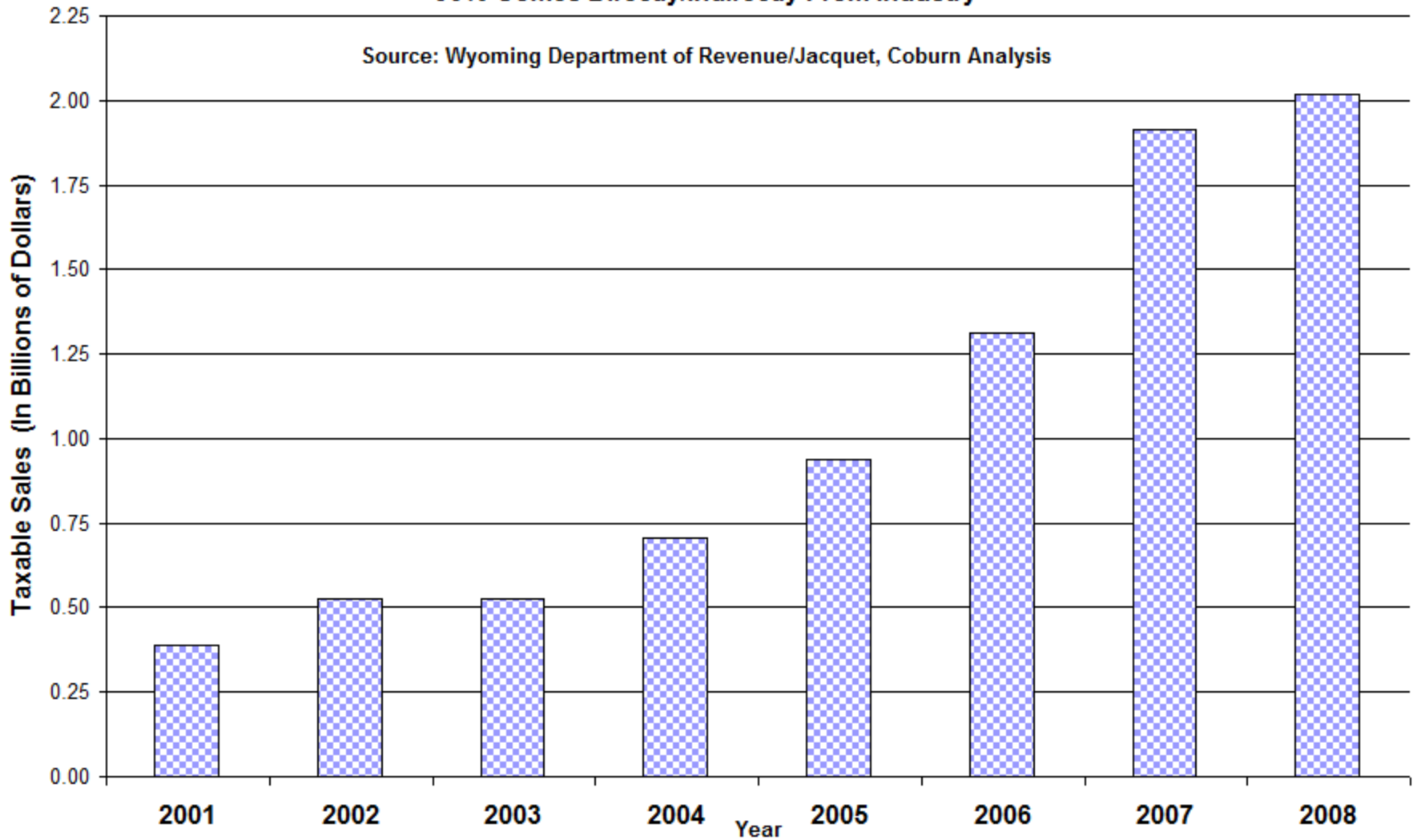
Source: Wyoming Department of Employment, Research & Planning



Sublette County Total Taxable Sales FY2001-2008 (In Billions of Dollars)

96% Comes Directly/Indirectly From Industry

Source: Wyoming Department of Revenue/Jacquet, Coburn Analysis



(Thompkins County, NY was \$1,175,010,000 in 2006)

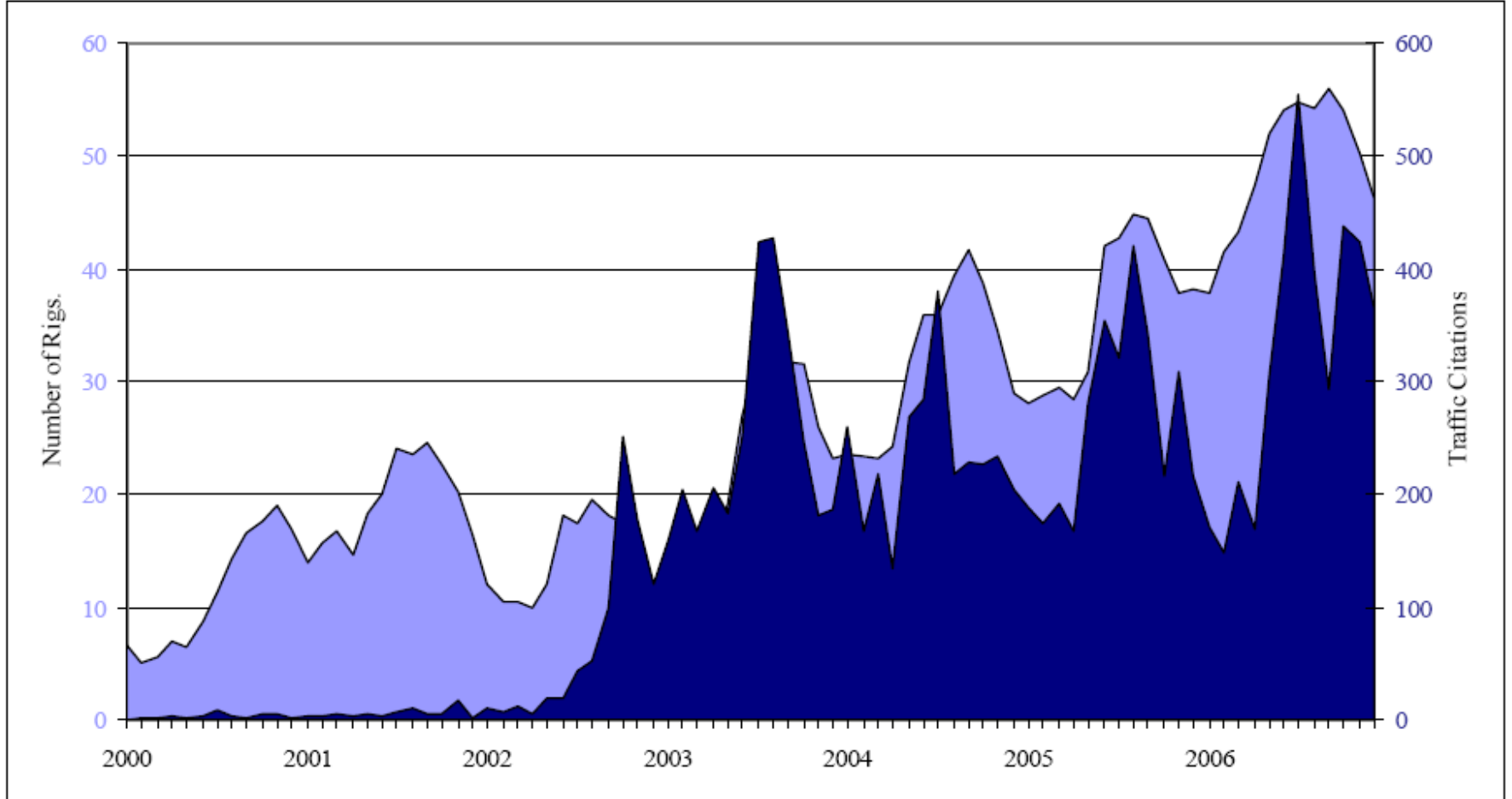
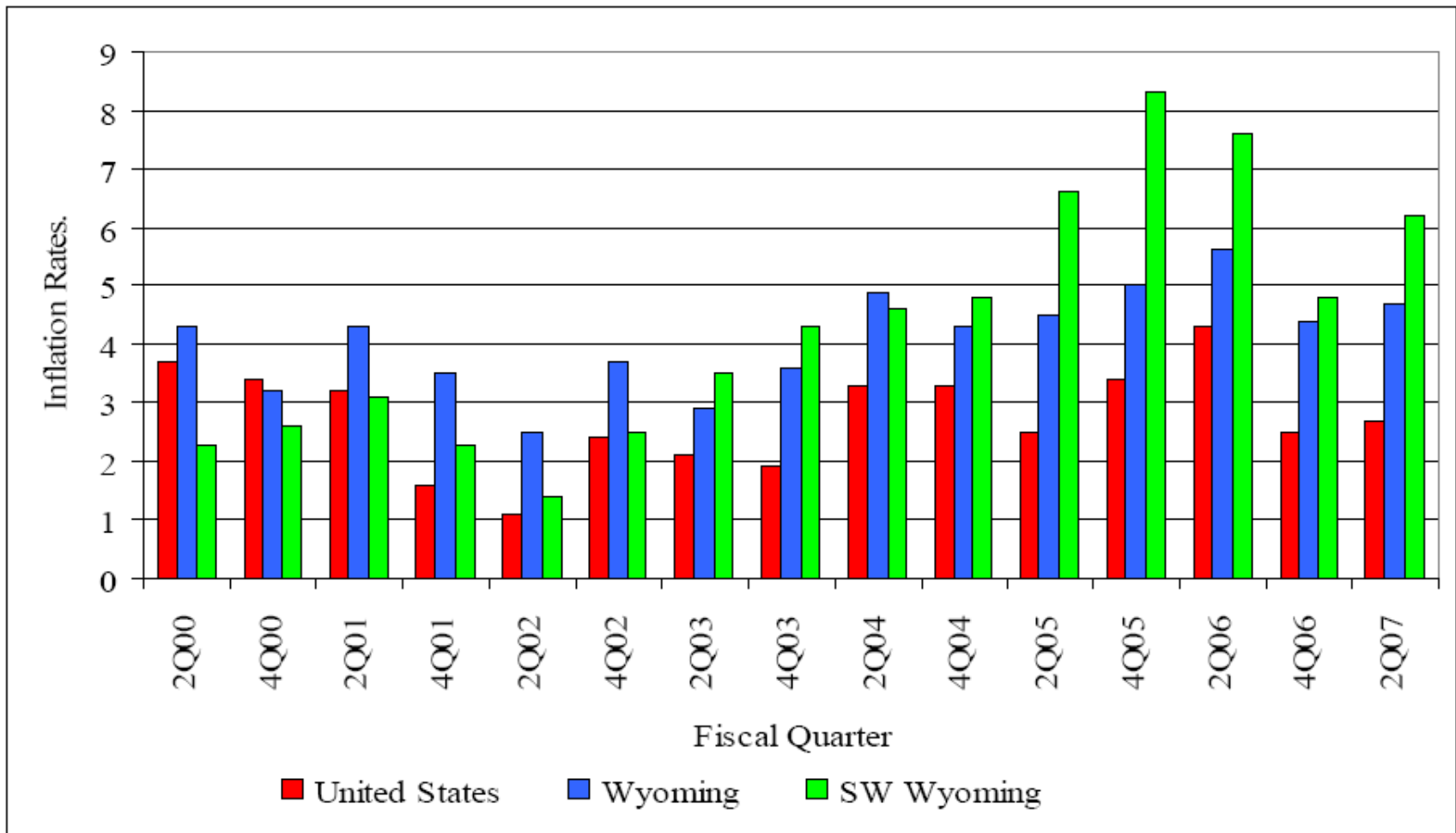


Figure 3.4.4-1 Rig counts correlated with traffic citations (Boynton et al. 2007; Divestco Inc. 2007)

ERG/Jacquet 2008

Inflation Rates SW Wyoming, Wyoming, US 2000-2007

Source: State of Wyoming



ERG/Jacquet 2008

Economic Two-Sided Coin

Very High Wages:

- \$15-20/hr starting wage for general gas field labor with no experience
- \$23/hr starting wage for rig workers with no experience
- \$10/hr effective bare-minimum wage for any job in surrounding area
- No-questions-asked job interviews
- Super-fast advancement in all areas
- Median family wage 2000: \$49,000 2007: \$69,000

Very High Cost of Living:

- Inflation rates quadruple the national average – as high as 9%
- Average rental – \$1200/month for a mobile home, more for a house
- Lots of Driving Costs
- Mechanics charge \$100/hr at minimum
- Home Values (and taxes) increasing at 17%/year

Economic Two-Sided Coin (Cont.)

Non-Gas Field Businesses and Residents struggle:

- Every business is short-staffed
- Businesses often closed for certain hours or days per week due to lack of employees
- Retail Sector stagnant or declining
- Commercial Space is very expensive
- Quality of Customer Service rapidly declining
- Very hard to afford unless tied to oil and gas industry
- Fixed Income residents hit the hardest
- Utilization of Immigrant Labor

Biggest Factors Influencing Economic Impact

1. Size of Workforce
2. Length of Development
3. Size of Community

$$\text{Impact} = \frac{\text{Size of New Workforce} \times \text{Length of Development}}{\text{Size of Community}}$$

Negative Social Impacts (Jacquet and Coburn, Forthcoming)

Town Character perceived to have changed (for the worse)

- From sleepy outdoorsy/cowboy town to busy redneck boomtown
 - Large swing from white/no-collar to blue collar culture
 - “The Bubba Factor”
 - Traffic from non-existent to bumper-to-bumper
 - Lots of new faces, people that weren’t raised here, don’t share values
 - Lock their doors at night for the first time
 - Lots of businesses bought by outsiders
 - Environmental quality decreasing
 - Fear of losing tourism/recreation economy
-
- **More tension in the Community**
 - **Social Relations said to have decreased**
 - **Community Satisfaction said to have decreased**
 - **Don’t socially interact with newcomers**
 - **Controversial projects/decisions dividing residents**
 - Residents become categorized by position

 - **Biggest Changes occurred at beginning of boom** (not at height of boom)
 - Similar to Krannich, et. al in Delta, UT

Positive Social Impacts (Jacquet and Coburn, Forthcoming)

Town Character perceived to have changed (for the better)

- More diversity in residents
 - Stores open later
 - More open-minded
 - Impetus to start tackling problems
 - New Families
 - More Young People staying in area
 - Blue Collar Culture reinforced among Blue Collar residents
-
- **Easy to get a job**
 - **Making more money**
 - **More money available to local governments**
-
- **Biggest Changes occurred at beginning of boom** (not at height of boom)
 - Similar to Krannich, et. al in Delta, UT

Biggest Factors Influencing Social Impact

(Jacquet and Coburn, Forthcoming)

- Prior experience with Boom/Bust!
- Resident's employment/experience in the industry
- Length of time in community
- Experience living in other communities (the "my community was perfect" effect)
- White Collar/No Collar vs. Blue Collar Culture ("The Bubba Factor")
- Size of Town Compared to Size of New Workforce

Massive Government Revenue Increases -But Yet Not Enough

Table 3.3-6 Sublette County and Municipalities Oil and Gas Tax Revenue from All Sources

Fiscal Year	Sublette County	Big Piney	Marbleton	Pinedale
2001	\$15,675,010	\$1,564,123	\$2,189,120	\$2,253,178
2002	\$21,156,928	\$1,527,205	\$2,688,177	\$2,725,136
2003	\$21,149,887	\$1,515,172	\$2,669,507	\$2,700,676
2004	\$28,366,047	\$2,012,634	\$6,913,024	\$6,943,193
2005	\$37,652,129	\$2,649,031	\$4,672,212	\$4,703,126
2006	\$52,641,542	\$3,680,492	\$6,490,976	\$6,523,268

Pinedale: \$14 million in current infrastructure projects
 \$35 million estimated in new infrastructure projects

Big Piney & Marbleton: \$13 million in current street repair
 \$7 million in additional repair

New Courthouse – \$10 million estimated
 New Maintenance Buildings – \$5 million each
 New Library – \$7 Million
 New Health Clinics – \$8 million each
 Doubling of Staff
 New EMS Facilities
 New School Buildings

Limitations to Local Government Policy

- Understaffed
- Overwhelmed
- Unprepared
- No way to control direct causes
- Revenues take a while to flow (if at all)
- Revenues can't be spent directly on the problems
- Lots of local controversy/dissent
- State/Federal/others looking to take money away
- State/Federal/Industry says "we don't manage socio-economic impacts"

Some Successful Mitigation efforts

- Police Meth Task Force
- 1% optional sales tax increase (96% will come from gas industry)
- Impact fees for developers
- Funneling money into infrastructure (can be spent directly, can't take it away later)
- Hiring new staff, lots of new planning
- Pace of Development Projections from Industry
- Master-planned subdivisions for long-term growth

Big Questions for Marcellus Shale

- Where? When? How Much?
 - Full Development Picture is still unknown. How many wells, how long to develop, and where will they be?
- Where will workforces be located?
- What % will be in-migrants (probably a lot)

Then:

- What are the communities' capacities to absorb in-migrants?
- What are the possible revenue streams available?
- Community-by-community analysis is probably needed
- Some communities will be hammered/some won't even notice

A few Preparation Steps:

- Create Intra-Governmental Task Force:
- Create Baseline Socioeconomic Profile:
- Track and Project Rig and Well Counts:
- Create Impact Projections:

Intra-Governmental Task Force:

- Invite Industry
- Invite all County, Towns, State & Community Agencies
- Create a clearinghouse for Information:
 - Existing or New Organization
 - Needs Proper Funding/Staffing – hire staff/contractor if needed – can be big task
 - Needs to be County/Community Specific
 - State wide or regional probably not effective

Baseline Socioeconomic Profile:

to define what is “normal” and to react quickly

Historical trends ■ Current capacities

Problem Thresholds

Government/Community Services:

EMS ■ Roads ■ Fire ■ Health Care ■ Social Services ■
Police ■ Water ■ Sewer ■ Courts

Broader Socioeconomic Trends:

Workforce ■ Economic Sectors ■ Unemployment ■ Wages
■ Housing Prices ■ Housing Availability ■ Temporary
Housing Hotels

Track and Project Rig and Well Counts:

- Monthly Trends of Rigs Drilling in the Area
- Number Wells In Area
- Map of Drilling Rigs and Wells
- Work with industry, state, and your own knowledge to devise drilling projections – both short and long term
- Update drilling projections as conditions change

Create Impact Projections:

- Given the development scenarios – what will the employment and population impacts be?
- What will the demand be on local services?
- How much will it cost to mitigate these demands?
- How can planning/development process be adapted to new pressures?
- What changes will take place in economy?
- What can be done to take advantage of the positives and lessen the negatives?
- How to attract long-term workers?

Gilmore's 4 stages of Boomtown Attitudes

1. Enthusiasm

- Concentration on Positive Impacts
- Negative impacts are either unknown or dismissed
- Lots of pro-industry spin, but little objective knowledge

2. Uncertainty

- Town starts to change
- Realization that negative impacts have arrived, and might grow
- Begin to Research/Analyze Situation, however few resources to draw upon
- Industry and State Gov. claims nothing can be done
- Pro/Anti growth divisions emerge within the community

Gilmore's 4 stages of Boomtown Attitudes (Cont.)

3. Near Panic

- Industrial Activity and impacts develop far faster than expected
- Town starts to change dramatically (what happened to my community?)
- Residents become confused, angry at officials and each other
- Gov. Services overloaded - officials ill-equipped, unprepared
- Realization that increased revenues will not match expenditures
- Any ongoing planning efforts are found to be misdirected, under-funded

4. Adaptation

- Core problems are identified
- Planning and mitigation strategies are developed
- Residents become solidified in their beliefs
- Development opponents start to accept situation
- Sense of Progress develops despite overwhelming impacts